THE ENGINEERING AND MINING JOURNAL AND COAL

(Published Every Saturday at 253 Broadway, New York.)
Entered at the Post-Office of New York, N. Y., as Second Class Mail Matter.

VOL. LXXI. FEBRUARY 16, 1901. No. 7.

RICHARD P. ROTHWELL, C. E. M. E., Editor.
ROSSITER W. RAYMOND, Ph. D., M. E., Special Contributor.
THE SCIENTIFIC PUBLISHING CO., Publishers.

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When change of address is desired, both old and new address should be sen
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Main Office: 253 Broadway (P. O. Box 1833), NEW YORK.

Telephone Number, 3,095 Cortlandt.

New York Cable Address—"ROTHWELL." (Use McNeill's or A B C 4th Edition Code.
London Cable Address—"PULCINETTO." " " " "

Branch Offices: Chicago, Ill 737 Monadnock Building, Phone 73 Harrison.
Denver, Colo., Boston Building, Room 206.
Salt Lake City, Utah, Atlas Building.
San Francisco, Cal., Third Floor, Mills Building.

Vancouver, B. C., Office, Molson's Bank Bldg. Wm. M. Brewer, Manager.
London, Eng., Office, 20 Bucklersbury, 368. E. Walker, Manager.

English subscriptions to the JOURNAL may be paid at the London Office at the rate of $7 = £1 8s. 9d.; the publications of the Scientific Publishing Company may be bought at the rate of 4s. 2d. to the dollar, net.

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The bill for the introduction of the metric system into all Government transactions, which has been favorably reported in the House of Representatives, seems to have been set aside for the appropriation bills and other measures—some of which might better be left alone. There is danger that it will not be taken up at the present short session, and will, therefore, go over for another year, though its passage would take very little of the time of Congress. Those who are in favor of this exceedingly useful act should take every opportunity to make their opinions heard in Washington.

The terms of the sale of Mr. Andrew Carnegie's interest in the Carnegie Steel Company are apparently not yet conclusively settled. The negotiations have been kept as private as possible, and it is impossible to get definite information regarding them. The minority stockholders in the Carnegie Company have yet to be settled with, and there are many other points about which no agreement seems to have been reached. Some delay is to be expected in a transaction of such magnitude, but the effect on the iron market has been very unfavorable, as there is a general hesitation to take up new business until this affair is settled.

We have heretofore referred to the importance of a proper consideration of the forest resources of the United States; and to the fact that this is of even more importance to the mining industry than to many others. The work for this purpose is hardly yet begun and its necessity is appreciated by comparatively few people. The Forestry Division of the Department of Agriculture, under both its late and present heads, is doing much to educate the public up to a proper understanding of the work, and has really done so much for a very modest appropriation, that it has set a bright example to other Government bureaus which might be mentioned. We hope for the success of this work and trust that it will receive the encouragement which it deserves.

It appears that the settlement of the Nome receivership scandal is by no means so complete as the despatches lately sent out from San Francisco represented. The opponents of Judge Noyes have not given up their demand for an investigation, although certain influences at Washington have been exerted to prevent such action. It is quite probable that the whole business will be thoroughly ventilated—as it should be. Meantime the Circuit Court in San Francisco has sent McKenzie to jail for a year for his contempt in refusing to obey the orders of that court when it set aside Judge Noyes' receivership orders. The miners and prospectors at Nome owe much to the Circuit Court's promptness in reversing the decisions made in Alaska and in enforcing its decrees.

The Atlin District, in British Columbia, will probably show a large amount of work during the coming season. Last year's results were encouraging, and though only a small number of the pioneers wintered in the country, a number have made arrangements to return as early as possible in the spring. The country seems especially adapted for hydraulic work, and several plants of large size will be installed this year. Our correspondents have referred from time to time to those which were at work or were made ready to work during 1900, and apparently the list will be a much larger one before the winter closes work in 1901. The country needs capital, and is not very well adapted for the individual prospector or small miner; but it promises good returns for those who are well equipped.

We have now the production of the three great iron-making countries of the world in 1900, two of them from the official returns of the iron-masters and the third closely estimated. The output of pig iron in these three countries in 1899 and 1900 was as follows, all being reduced to metric tons, for purposes of comparison:

	1899.	1900.	Changes.	Per ct.
United States	13,838,634	14,009,870	I. 171,236	1.2
Great Britain	9,572,178	8,962,578	D. 609,600	6.4
Germany	8,029,305	8,351,742	I. 322,437	4.0
Totals	31,440,117	31,324,190	D. 115,927	0.4

The total represents about 80 per cent. of the pig iron production of the world; and the comparison shows that in 1900 that production was practically the same as in the previous year. The reaction in the closing months was sufficient to offset the extraordinary activity with which the year opened. The figures indicate that the total output of raw iron in 1900 did not vary much from 40,500,000 metric tons.

The present indications are that the conference of bituminous coal miners and coal operators will be able to conclude a satisfactory agreement to take the place of the present mining contract, which will expire on April 1st. Some concessions will be made on each side, but the

final adjustment now seems in sight. The reports that the parties would be unable to agree, and that the result would be a general strike were quite freely circulated, but seem to be without foundation. The general mining rate is to be practically the same as that of the current year. The chief point at issue, and the one most difficult of settlement, has been the differential between pick and machine mining; and this has been a vexed question for several years. The amicable settlement now in sight is a most desirable result, since the trade is hardly in condition to stand a long strike, which might have results disastrous to both parties.

Pig iron production in Germany for the year 1900 is reported by the Union of German Iron and Steel Makers as below. The figures are compared with those for 1899, and are in metric tons:

	1899.		1900.		Changes.
	Tons.	Per ct.	Tons.	Per ct.	Tons.
Foundry irons	1,424,723	17.8	1,487,929	17.8	I. 63,206
Forge irons	1,668,571	20.7	1,587,194	19.0	D. 76,377
Bessemer pig	516,959	6.4	495,790	5.9	D. 21,169
Thomas (basic) pig	4,424,052	55.1	4,780,829	57.3	I. 356,777
Totals	8,029,305	100.0	8,351,742	100.0	I. 322,437

The total increase in 1900 was 4 per cent. only; it might have been greater, but for difficulty over fuel supplies. It is to be noted that while foundry iron showed a gain of 4.5 per cent., and basic pig one of 8 per cent., there were decreases in both forge iron and Bessemer pig. The gains were quite evenly distributed through the year, and production showed less fluctuation than in Great Britain and the United States. The year, so far as there were changes, emphasized the predominance of basic converter steel in the German iron trade.

THE SMELTER CONSOLIDATION.

The consolidation of the Guggenheim interests with the American Smelting and Refining Company seems to have been followed by a certain amount of friction in the management. The fact that the Guggenheim party, with the stock issued to acquire their plants, hold a majority interest in the stock of the consolidated company, and will take a controlling part in the management, seems to have been distasteful to certain elements in the American Company. The trouble was made public this week when the resignations of Messrs. Rogers and Lewisohn from the board of directors were announced. This was followed by heavy short selling of the common stock on the Exchange, over 100,000 shares having been sold on Monday, with a drop in the quotation from $62 to $55, though it afterward recovered to $56½. On Wednesday and Thursday the transactions were much more restricted in volume.

A part, at least, of the friction in the management was due to the question of the selling agency for the products of the smelters. It is understood that the intention is that the American Smelting Company will sell its silver itself, but the question of allowing the United Metals Selling Company to sell the company's copper was discussed but the difference of opinion as to the amount of commission and the duration of the contract was too great for adjustment. It is to be hoped that moderate counsels will prevail and harmony be re-established in this great enterprise. It is easy to imagine some of the possible effects of an active hostility between the great interests represented in the opposing sides to this controversy; it is certain the stockholders would not be the gainers. There have been current already some wild reports of the formation of an opposition company and the building of new smelters; but it must be remembered that the construction of new works takes time and large capital, while the control of the existing company carries with it many long ore contracts, which would interfere, for some time to come, with the establishment of any extensive business by a competing concern. It is too early to say much of the effect of a rival smelter "trust" upon the interests of the miner, though it goes without saying that these would not suffer by competitive buying of his products.

PIG IRON PRODUCTION IN GREAT BRITAIN.

Until recently it was a comparatively easy matter to estimate at an early date the production of pig iron in Great Britain, since the periodical publication of shipments and stocks in the different districts made it possible to follow the output closely. For two years past, however, the producers of the important Cleveland District have refused to give out the usual figures, for some unexplained reason, and this has made it much more difficult to obtain early figures. We find, however, in the London "Statist"—which has usually given exceedingly close estimates—an advance statement which probably will differ but little from the figures of the British Iron Trade Association when ascertained and published.

According to this estimate the production of pig iron in Great Britain in 1900 was as below, in long tons; comparisons being made with returns for 1899:

	1899.	1900.	Changes.	Per ct.
Scotland	1,166,838	1,153,896	D. 12,942	1.0
Cumberland	1,409,300	1,413,340	I. 4,040	0.3
Cleveland	3,251,396	2,900,000	D. 351,396	10.8
Wales, Midlands, etc.	3,593,901	3,354,199	D. 239,702	6.7
Totals	9,421,435	8,821,435	D. 600,000	6.5

The decrease, which was chiefly in the second half of the year, was due to some interruptions of fuel supply by local strikes; to the closing of some furnaces on account of the high price of fuel; and, toward the close of the year, the blowing out of others on account of decreasing demand and prices. The total supplies and consumption for the year 1900 are estimated as follows:

Production, as above estimated	8,821,435
Decrease in stocks on hand at close of year	307,114
Imports	175,393
Total supplies	9,303,942
Exports for the year	1,428,549
Estimated consumption	7,875,393

Exports generally were well maintained. Of the imports shown, over half—94,282 tons—were from the United States, while 61,080 tons were from Sweden, and 20,031 tons from other countries. These imports constituted only about 1.9 per cent. of the total supply. In the course of 1900 British trade journals have had much to say about depression of prices caused by "overwhelming supplies" of American pig iron. As the quantity of American pig iron received was only a trifle over 1 per cent. of the total supply, there does not seem to have been any importation which could justly be called "overwhelming." Of course a small quantity may be so offered in the market as to affect prices for the entire product; but the decline in the pig-iron quotations toward the end of 1900 was due to smaller purchases and the partial collapse of the speculation in pig-iron warrants. American iron sales were not the real cause, though they were freely used by the bear side in the speculative market.

METHODS OF KEEPING NOTES.

The best system of keeping notes is a matter of interest to mining engineers and metallurgists, every one of whom has to keep notes of some kind or another, or ought to if he does not. His notes will be of two kinds, field notes and office notes. With respect to the former, there is probably no question as to the best method; in fact, so far as we know, there is only one method, namely, the use of a substantially bound book of convenient size to be carried in the pocket. Field notes will be naturally consecutive chronologically and reference can be made to them easily by an index of the work to which they pertain and its date. With office notes it is different, however, inasmuch as they will comprise jottings of information obtained in reading or conversation on a great variety of subjects, and if such notes are made in books they become buried eventually and lose their usefulness on that account, providing that the note-books be not indexed, and there are probably few engineers who go so far as that. The engineer who undertakes to preserve all his office notes will soon find that the book system is inadequate and will try something else.

In the preparation of "The Mineral Industry" it is necessary to collect and classify for each volume a vast quantity of information comprising typewritten memoranda, clippings from technical journals and pamphlets published as part of the transactions of numerous scientific societies. Our method is to make all such memoranda on sheets of paper of uniform size—8 in. by 5 in. Clippings from other journals are pasted on sheets of the same size, care being taken to paste them in such a way that there is ample marginal space for the insertion of emendations, comments, etc. The system of "The Mineral Industry" being to treat all subjects pertaining to it according to the predominant element, the notes are classified according to those elements and put into stout envelopes of uniform size, which are filed alphabetically. In the case of some of the comparatively unimportant topics, such as bromine, bismuth, graphite, etc., one envelope is usually sufficient to comprise the collection of a year, but with such subjects as gold and silver, lead and copper and the other important metals, the collection would far exceed the limits of a single envelope, and the notes relating to them are sub-classified, as, for example, Gold and Silver: a, Mining in the United States; b, Mining in Foreign Countries; c, Commercial Statistics; d, Metallurgy, etc., and some of these classes may be further subdivided, as, for example, Metallurgy: (1) Amalgamation, (2) Chlorination and Bromination, (3) Cyanide Processes, etc. The notes sorted under each classification being arranged alphabetically, or otherwise systematically, it is always easy to refer to any particular one, or in case it is necessary to know what information is in hand concerning any subject, the inquiry is settled immediately by a call for the envelope relating to that subject. We have employed this system for many years,

and having found it to work well, we can recommend it to our readers as a satisfactory method of keeping their own notes.

An engineer of our acquaintance employs a modification of our system which he described in a recent letter as follows: "I use substantial white paper, which I purchase in pads, the size of the sheets being 5¾ by 8 9/16 in. This is purely an arbitrary size, which was adopted because a considerable volume of notes having been kept on sheets of those dimensions which were obtained casually, it became necessary ever afterward to have the paper specially cut to that size for the sake of uniformity. Paper approximating those dimensions is, however, most convenient. It is an easy size to handle, can be used readily in the typewriter, and is large enough to receive any clippings from technical journals that anyone is likely to make, leaving an ample margin. I have a quantity of pasteboard telescoping boxes of width inside corresponding to the width of the paper, but of length about half an inch greater than the paper, so that the tips of the fingers may be inserted to turn over the sheets which are filed therein without the necessity of dumping the entire contents of the box. The boxes which I use are 2½ in. deep. They are consequently of a shape and size about like those of a volume of 'The Mineral Industry,' and can be placed on a book-shelf precisely like a row of books, the class of notes contained in each box being lettered on its back. Until a box is filled, I put a piece of pasteboard over the sheets contained in it and a crumpled wad of paper compressed between it and the cover serves to keep the sheets in proper position and prevents buckling. When a box is filled, I usually subdivide its contents into two more classes and transfer them to appropriate boxes. Such boxes as I have described can be obtained from the manufacturer at a cost of about 5c. apiece. I find them more convenient and satisfactory than the use of envelopes for filing. I think, however, that boxes only 1½ inches deep would be better generally than those 2½ inches deep."

Some engineers no doubt make more of a practice of keeping notes than do others and our friend is possibly one of the extremists. However, there can be no question as to the advisability of preserving such data, providing it can be done without undue loss of time. No collection of treatises or the files of technical journals and transactions of scientific societies can be expected to give an engineer the special information that he may need at some time or other, and even if they do contain it the probability will be that it is so buried as to be unavailable. A collection of well-classified private notes is therefore the resource of the specialist.

NEW PUBLICATIONS.

"The Transit." Being the Annual Record of the Engineering Society of the State University of Iowa. Iowa City, Iowa; published by the Society. Pages, 116; illustrated. Price, 50 cents.

This yearly volume—the seventh in the series—shows the steady growth and progress of the society by which it is issued. The engineering department of the Iowa University has grown from a small beginning to have an established reputation in the West; it has been fortunate in its professors, whose work has shown excellent results. Besides the record of the year's work of the Society, this volume contains several interesting papers by members.

"Elevation and Stadia Tables." By Arthur P. Davis. New York; John Wiley & Sons, and London; Chapman & Hall, Limited. Pages, 44.

This is a collection of tables which have been prepared from time to time to meet the demands of field work. Their utility has been fully demonstrated in actual practice. There are six tables giving differences in altitude for all angles and distances; horizontal distances in stadia work, etc., with all the necessary corrections. The hydraulic tables will be found very convenient for preliminary work. They give velocities direct for most practical problems in canal construction, with data for convenient computations of slopes not included in the table, for both canal and river work.

"Notes on Some European Iron Making Districts." A Collection of Letters to the "Iron Age." By Charles Kirchhoff. New York; printed for the Author. Pages, 114; illustrated.

This is a reprint of a series of letters written by Mr. Kirchhoff to the "Iron Age" during a visit to Europe in 1900. They have been printed in book form for private circulation, in order to present them in more convenient shape for those who might wish to preserve them. The letters or articles are six in number, treating respectively of "The Iron Industries of Germany"; "The Minette District of Lorraine, Luxenburg and France"; "Glimpses of the British Iron Industry"; "The German Machine Tool Market"; "A Flying Trip to Remscheid"; "Paternalism and Industrial Development." The letters are accompanied by several maps and diagrams and some half-tone illustrations. They are interesting, as embodying the notes of a trained observer, who is familiar with the American iron industry, and is able to make comparisons. The German iron districts receive the most attention, nearly three-fourths of the book being devoted to them; while the most interesting part is that describing the Minette ore district, which is of so much importance to the German industry.

BOOKS RECEIVED.

In sending books for notices, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Montana. Twelfth Annual Report of the Inspector of Mines." John Byrn, Inspector. Helena, Mont.; State Printers. Pages, 84.

"Geological Report on Monroe County, Michigan." By W. H. Sherzer. Lansing, Mich.; Published for the Geological Survey by the State Printer. Pages, 240; illustrated.

"Geological Report on Sanilac County, Michigan." by C. H. Gordon. Lansing, Mich.: Printed for the Geological Survey by the State Printer. Pages, 36; with map and illustrations.

"Geological Report on Huron County, Michigan." By Alfred C. Lane. Lansing, Mich.; Printed for the Geological Survey by the State Printer. Pages, 332; with maps and illustrations.

"The Journal of the Iron and Steel Institute. Volume LVIII, No. 2." Edited by Bennett H. Brough, Secretary. Printed for the Institute. London; E. & F. N. Spon, Limited, and New York; Spon & Chamberlain. Pages, 656; illustrated.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Gold in Switzerland.

Sir:—Being a reader of your paper for about 15 years, I have never seen any account of Switzerland being a gold-producing country. Allow me to send you a Swiss paper, published in America, giving a statement of the product of a gold mine opened by a French company. I would be pleased to see some comment upon this in your "Journal," if possible. I am, personally, the owner of a gold-bearing property in Switzerland which three American experts have highly commended. I expect to develop the property this coming summer, and address you now, thinking it may be of interest to mining men like myself, who look upon your invaluable paper as eminent authority. I may say that this property of mine has lain dormant for want of enterprise and capital, inasmuch as the Swiss people are not a mining class.

New York, Feb. 3, 1901. Attilio Giannini.

Gold Dredging in Georgia.

Sir: Our dredging plant, operating on the Chestatee River in Lumpkin County, Georgia, is the same dredge, built by the Marion Steam Shovel Company, which was described in the "Engineering and Mining Journal" February 27th, 1897.

In practice we find that by depositing our tailings with that end in view, we can divert the river enough to assist us materially in working the adjoining bottoms. Our method is to start in the river and make a through cut in the bank, saving the values to bed-rock, leaving a new channel. Our territory is sufficient to enable us to leave this long enough for high water to reduce the debris, and often cut the topping ready for another "through," which saves the cost of handling dead material. The cost to us is about 3c. a cubic yard of material handled. While we save the coarse gold, and in fact some so fine that we cannot feel any grit; and so light that after precipitating in a glass of water we can recover only about 75 per cent., we have been unable to devise any plan for saving the black sands (concentrates) which pass through our sluices in large quantities. The most expert opinion we have estimates it at about 2 per cent., or, say, 10 tons a day. The same opinion values the sand at $8 per ton as iron ore. Some 20 assays we have, vary from $5 to $306 a ton gold. The Consolidated Company at Dahlonega saves these concentrates at its stamp mill and, we understand, extracts about $40 a ton.

There are two dredging outfits below us in the river, and another is nearly ready to commence work above us. The gold here is widely diffused. You can pan a color most anywhere. Our theory is that the ores, being refractory, are constantly washing down until the action of the elements frees the gold, which then shortly finds a resting place. But the black sands in the river and bottoms now furnish the problem exciting most attention and study. All the dredge interests are looking for light on the subject. Birch Brothers.

Newbridge, Ga., Feb. 6, 1901.

Newfoundland Mines.

Sir: I note in your issue of January 19th a letter from Mr. Freeman, of St. Johns, Newfoundland, giving a glowing account of the mining industry in that colony. I have no desire nor intention of belittling the mineral deposits or industry of the island, but I desire to contradict one statement and comment on others contained in his letter.

In writing of the Workington Mine, Bay-de-Verde, with which I was connected from March, 1899, to March, 1900, he states that the main shaft (which is 142 ft. deep) contains a 7-ft. vein of iron ore. This statement is incorrect. A small deposit was found near Lower Island Cove, but on development it proved to be a gash vein, and at a depth of 106 ft. from surface the ore became gradually intermixed with the enclosing slate until it formed a breccia, analyses of which yielded metallic iron from 4 to 15 per cent. and silica from 50 to 80 per cent. This seam was followed to a considerable depth below the first level (106 ft.) and contained only sufficient iron matter to discolor the water. The seam was exploited on the surface, and on each side of the shaft on the first level, and a cross-cut was driven beyond the iron-bearing strata with no better results. In addition to the above, two diamond-drill holes were bored in such a manner that the two holes enclosed as it were the vein, and formed two sides of a triangle, the apex being

underground. The cores showed no trace of iron. At this point—October, 1899—when neither hole could show the continuance of the vein at a depth, I advised the company to either wind up or take the capital to fields offering better inducements. The remainder is history.

There are several people in St. Johns interested in the claims of this district who have never spent one dollar in development; in fact have never paid their part of the registration and survey fees. These same people, posing as authorities, will state to the expert representing capital, that—pointing to a certain spot—there is a body of ore under that spot. I have not seen any geological or other reason why it should be so. These same people were indirectly responsible for the report of the promoter's engineer—and subsquently manager—which led the company to carry out his plan of operations to which it strictly adhered. While it is very true that their unsolicited gratuitous advice receives the usual compensation, at the same time there is a possibility of their persuading some company that there is a 7-ft. vein of iron ore in the mine. If this letter succeeds in preventing parties desirous of obtaining the information from spending the amount of money necessary to investigate the above statement it will have accomplished the principal object for which it is written.

I shall take the liberty of quoting Mr. C. A. Meissner in a paper read before the Canadian Mining Institute, entitled "Prospecting for Iron Ores in Newfoundland and Cape Breton," which is self-explanatory: "The irresponsibility and unreliability of many prospectors, coupled with ignorance in many cases, is a serious drawback in all these countries, and I would utter an earnest word of caution on this subject, as it is bound to react on the whole country if persistent misstatements and exaggerations are laid before the public, especially before English investors. I can speak feelingly on this subject, as I have lately had experience in these matters, where, in many cases, there was no foundation for reports that claimed large quantities of ore, and where it was evident that no more than mere superficial examination had been made. I will not impute worse." The Workington Mine was supposed to contain 40,000,000 tons.

With reference to the Cliff Silver, Brigus and Mings properties it may be reasonably assumed that the "various causes for which these mines were abandoned" were that they failed to produce a sufficient quantity of the mineral or metal sought.

The Rose Blanche District came in for a thorough and earnest sidewalk examination just previous to my leaving the island. Up to that time I am not aware that the district had ever been examined and the veins sampled with a view to serious mining. I naturally felt interested in that part of Prof. Howitt's report quoted by your correspondent. I may state that several samples from this district submitted to me for assay did not yield sufficient values to pay for mining and milling, nor did the assay of concentrates resulting from a weighed quantity of the samples mixed convince me that one would be justified in talking seriously of a 100-stamp mill.

I frankly admit that it would be bordering on lunacy to condemn a district or mine on the few samples submitted to me; yet, on the other hand, it seems unfortunate that all the samples should prove valueless and all the more disappointing when said samples were supposed to have been selected.

I cannot refrain from commenting on the figure which it is supposed will cover mining, milling and local expenses. For the sake of comparison I will give the expenses of a few plants which are universally known as models for systematic working and good management:

Mine.	Mining.	Milling.	Total.	Authority.
Gwin Mine, Calaveras Co., Cal.....	$2.22	$0.36	$2.58	.....
Alaska United Gold Mining Co:				
Ready Bullion Claim.....	1.33	0.64	1.97	.....
700-ft. Claim	1.09	0.58	1.67	.....
North Star Mine, Cal.....	....	0.82	....	E. R. Abadie.
Homestake. South Dakota.....	....	0.85	....	T. A. Rickard.
Golden Star Mill, South Dakota.....	....	0.70	....	T. A. Rickard.

There are other mines where the cost of mining and milling are still further reduced, but they are working under conditions not likely to be attained in Newfoundland. Having this in mind, the above list may serve as a guide for any low-grade proposition.

In conclusion I would state that owing to the short summers and severe winters, the interior of the island has not had the attention from prospectors that it deserves. There are several colonization and exploration companies registered in London whose sphere of operations is, or should be, in the colony, but personally I never heard of them.

S. Herbert Williams.

Winthrop, Mass., Feb. 12, 1901.

THE NEW JERSEY ZINC-GENERAL CHEMICAL CONSOLIDATION.

A tentative agreement for the consolidation of the New Jersey Zinc Company and the General Chemical Company has been made and submitted to stockholders for their approval. The terms of this contract are substantially as follows:

A new company is to be formed, which shall purchase and own the capital stock or properties of both the companies named. The new company is to issue securities to a total amount of $64,000,000, of which $25,000,000 will be in 5 per cent. debentures, $15,000,000 in 6 per cent. cumulative preferred stock, redeemable after 10 years, and $24,000,000 in common stock. A sinking fund of 1 per cent. on the debentures is provided for, to be applied to purchases of new property, or—after 10 years—to retirement of the bonds. Of the common stock $8,000,000 will be full paid and $16,000,000 assessable stock.

Stockholders of the New Jersey Zinc Company will receive for their property $16,666,667 in debentures, $10,000,000 in preferred stock and $6,000,000 in full paid common stock; while those of the General Chemical Company will receive $8,333,333 in debentures, $5,000,000 in preferred stock and $2,000,000 in full paid common stock. The $16,000,000 assessable common stock is to be offered for subscription, three-fourths to New Jersey Zinc stockholders and one-fourth to General Chemical stockholders. On this stock 10 per cent. is to be paid down at time of subscription, and thereafter not more than 10 per cent. is to be called in any one year.

The agreement will become binding when assented to by two-thirds of the stock of each company. Such assents must be given and the stock deposited with the Farmers' Loan and Trust Company of New York within three months. In all the preliminary arrangements the stockholders are represented by a joint committee, Messrs. Stephen S. Palmer, August Heckscher and William P. Hardenbergh representing the New Jersey Zinc Company and Messrs. William H. Nichols, Sanford H. Steele and Charles Robinson Smith the General Chemical Company.

The stocks of the New Jersey Zinc Company at present is $10,000,000, while the General Chemical Company has $12,500,000 preferred and $12,500,000 common stock. The purchase will include all the properties of both companies, but not that of the Nichols Copper Company, an allied concern of the General Chemical Company. A large part of the business of both companies can be done to advantage under one head, the New Jersey Zinc Company being, for instance, a large producer and seller of sulphuric acid, as well as of metallic products and zinc oxide.

GEM MINING IN CEYLON.*

By Edgar Huhn.

The districts in Ceylon in which most of the precious stones are found are in Ratnapura and Rakwana, both in the southwestern portion of the island, and within about 30 miles distance of each other, the former place being about 65 miles from Colombo, the chief port and gem market of Ceylon.

It is a very curious feature in mining in Ceylon, that with the exception of the diamond, emerald, turquoise and opal, almost every precious and semi-precious stone is found there, and frequently a great variety of them are dug out of the same pit. Rakwana is especially famed for its sapphires, and if a native dealer wants to thoroughly impress you with the quality of his goods, no matter where they may come from, he will assure you most solemnly that they are the true Rakwana sapphire. Almost all the dealers in gems are Mohammedans, the native Cingalese having very little to do with the business except the manual labor of digging for them.

The mines, or, more correctly, diggings, are located in a rather mountainous country, and with the exception of the Everton Mine, which has a depth of several hundred feet, and which is considered to have been the most successful on the island, are really only shallow pits, usually measuring 6 to 10 ft., and rarely exceeding 10 ft. in depth.

There are certain well-defined features in the geological formation of the country to be looked for in seeking for the gem-bearing ground, and when the spot is decided upon digging can proceed, provided one is possessed of the license granted by the proper authorities. The gems are found in a stratum of the earth usually from 3 to 8 ft. below the surface. The stratum is called by the natives "Illam;" it is a loose, gravelly soil and is easily manipulated; when a sufficient quantity has been brought to the surface the "Illam" is taken in small hand carts or carried in baskets on the heads of coolies to the nearest stream and there washed. This is done by means of a closely-meshed sieve made of plaited cane strips and about 30 in. in diameter by 9 in. deep, running to a conical point.

The "Illam" is then thoroughly washed in the stream until only the clean pebbles remain. These are then brought ashore and sorted over and the gems picked out. It is in this process of washing that a white man, trying to work one of these mines, loses the best stones, as he cannot look over more than one washer at the same time, while the native is wonderfully quick at throwing out a fine specimen to a place where later on he can come and look for it.

Spinels of all colors and garnets are almost invariably found in conjunction with the other stones; also the different varieties of zircon, commonly termed jargoon. Cat's-eyes are usually found together with aquamarines and the different kinds of beryl, of which the alexandrite is the most sought after. There has also been some successful dredging in the Ratnapura River, and a party have been working in the river in diving suits, a new departure. The results seem promising.

Gem mining in Ceylon has of late years been on the decline owing to the old mining districts being seemingly worked out, and there are now comparatively few people engaged in the industry, the majority being engaged in seeking plumbago, which is abundant and is readily marketable: or else they are working on the numerous estates, which, while bringing them in less money, is yet a sure livelihood for them at all seasons.

A good proportion of the stones found are cut locally in the village of Ratnapura and in Kalutara, a small place on the coast some 40 miles south of Colombo. The quality of the cutting is improving considerably, though the cutters still insist on making them very thick and bulky so as to have them weigh as much as possible.

PROPOSED NATIONAL PARKS.—At the Annual Meeting of the American Forestry Association, the board of directors reported as follows (the "Forester" for January), on the proposed national parks: "The board of directors takes this opportunity of urging once more the support of three projects of national importance. These are proposals to make national parks of the Calaveras Grove of Big Trees in California, of a tract of land in the southern Apalachians, and of the Leech Lake region in northern Minnesota. The Calaveras Grove, the finest and most interesting of all Sequoia groves, is now owned by a lumberman, who, unless the grove is purchased this year by Congress, will begin to fell the trees. In the proposed Appalachian Park region in North Carolina seven men from the Geological Survey and the Division of Forestry have been making surveys and examinations throughout the summer and fall, and their reports are in preparation. The Minnesota Park plan is now in the shape of a resolution for the appointment of a Congressional committee of investigation. It is very important that this resolution should not be left till the end of the session when other questions could easily be made to take precedence over it."

*Abstract of article in "Jewelers' Circular," New York.

A NEW PORTLAND CEMENT MILL IN THE GAS FIELDS OF KANSAS.

Written for the Engineering and Mining Journal by G. P. Grimsley.

For ten years natural gas has been used in Kansas for household purposes, but its use for manufacturing has been limited. Within the past three years the center of zinc smelting has been moved from the coal-fields to the gas belt of Iola and Cherryvale in Kansas, where nearly one-half of the spelter of the United States is made.

A number of large brick yards have been started here and there through this gas belt extending from Paola south through Iola, Cherryvale, Chanute, Independence, Erie, Chetopa and Coffeyville. Last June the first Portland cement in Kansas was made at the new mill in Iola. The writer made the geological report on this location three years ago for the Industrial Department of the Santa Fe Railroad, through whose agency the cement company was interested and the mill erected. The Iola Portland Cement Company, organized by Holmes, Holmes & Beaton, of Detroit, Mich., has control of several hundred acres of land with limestone running 95 per cent. carbonate of lime, and shale with 75 per cent. silica and alumina, and a 10,000,000 cubic feet gas well; and its property is connected by switch with the Santa Fe Railroad.

The mill was built under the direction of Mr. Leigh Hunt, who planned the mills at Coldwater and Quincy in Michigan. There are four buildings constructed of steel, brick and cement. Two of these are 160 ft. wide and 360 ft. long, containing 3 No. 5 Gates crushers, 21 rotary kilns with capacity of 160 barrels each in 24 hours, and 42 Griffin grinding mills. A headquarters building stands between the above structures and is 200 by 42 ft., containing the chemical and physical laboratories, electrical headquarters, machine shop, and store room. At right angles to these 3 buildings is the store room, 600 by 80 ft., and from this the cement is loaded directly on the cars. About 1,000 tons of limestone and shale are used in 24 hours, giving a daily production of 3,500 barrels of cement. Neat briquettes have a tensile strength of 800 to 1,000 lbs. after 28 days; or with 3 parts sand have a strength of 400 to 500 lbs.; and 95 per cent. passes through a No. 100 sieve.

IOLA PORTLAND CEMENT WORKS, IOLA, KANSAS.

Natural gas is the fuel used to drive the engines, to dry the material, and to burn the cement. The largest gas engines in this section of the country are to be found at Iola. There are six 300-H. P. Westinghouse gas engines, and three of 150 H. P. Two additional 300-H. P. and three 150-H. P. engines will soon be added. The aggregate horsepower now used is 2,600, and there are in all 13 gas engines. About 5,000,000 cu. ft. of gas are now used, which would probably be equivalent to nearly 250 tons of coal a day.

The company has its own water-works on the bank of a small stream from which the water is pumped through an 8-in. main to the reservoir and stand-pipe, where it has a head of 121 ft. This supplies water for the daily use of the mill. In addition there is a 300,000-gallon electrical pump driven by motor a mile from the mill on the Neosho River, but controlled by a switch in the engine room. This pump is used solely for fire protection.

The electrical equipment is a model for perfection of detail and automatic arrangement. There is one 150-H. P. Westinghouse gas engine directly connected with a 75-kilowatt 250-volt direct-current Westinghouse dynamo, which furnishes the power for lighting the mill at night. In the same station is a 150-H. P., 2-cylinder, Westinghouse gas engine driving a countershaft for the machine shop, and a Rand compound air compressor. The other end of the shaft is belt-connected with a 22½-kilowatt 250-volt direct-current Sprague generator which furnishes power for the laboratory, and for the few lights used in the daytime.

There is one 10-H. P. 2-cylinder Westinghouse gas engine, which has now run six months without interruption, connected with a 15-volt 125-ampere shunt Carrocher-Wheeler sparking dynamo. This furnishes the sparks to the gas engines. The current from this dynamo is carried into 12 cells of a storage battery and then into 12 other cells, thus giving two chances for connecting the current for sparks in the engines. A third chance is furnished by a new dynamo so connected as automatically to be thrown into use in case of accident to the first dynamo.

All of the engines and dynamos are connected with signal lights and a bell annunciator in the engineer's office, so that by eye and ear he can tell how the engines and dynamos are running; and in case of accident the engineer has all under his direct control.

The company's chemist, Dr. Oscar Gerlach, has had years of experience in Germany and Michigan. All mixtures are carefully watched by him, and tests are made at various stages of the manufacture under his direction. The physical and chemical laboratories are thoroughly equipped and three chemists are employed.

The mill has cost over $1,000,000; it is only 110 miles from Kansas City, and about 400 miles from St. Louis. The demand for Iola cement is increasing, and the mill will be enlarged during the next few months.

COAL MINE FOREMEN AND LABOR-SAVING DEVICES.—I

Written for the Engineering and Mining Journal by L. C. Morganroth.

The foremen in charge of coal mining operations in Pennsylvania are men who have worked their way up from the army of laborers. They have obtained and hold their positions, as a rule, by merit alone. The foreman is the link between the laborer and employer, and as a link is subject to a double strain. All advancement in the history of a plant, the improvement of machinery, the increase in output, or the reduction in cost are directly or indirectly to be placed to the credit of the foreman. The greatest aid or assistance in developing resourcefulness and economy in the individual foreman is through an opportunity to see and examine other plants. No matter how bright a man is, if he sees only his own mine or his own breaker the isolation induces a certain narrowness of mind. A corporation having a number of collieries should afford an opportunity for its various foremen to frequently visit each other. A regular time could be set, of which the men are supposed to take advantage. In this way they keep in touch with one another and get new ideas. A mental comparison is made between the plant they are visiting and their own. The visiting foreman either gains greater confidence in the particular line of development or improvements he is following or sees where he can do better by incorporating ideas he has just seen. The general superintendent should hold a meeting, at least once a month, of all his foremen. Let all plans of improvements, changes in methods of work, etc., be submitted to them. Each man should be also encouraged to make suggestions by which he thinks his own plant or those that he has visited can be improved. By a judicious comparison of the various items in properly itemized cost sheets of each plant a foreman can see where his cost is higher than it should be. It is the best way for each individual foreman to detect leaks in his various departments, while he has advisors at hand to suggest remedies. Take the best mining papers and see what coal men are doing in other States and countries. Let the foremen have an opportunity to study and discuss the same, with a view to incorporating any good ideas in their own works.

It may happen, for instance, tnat a breaker boss sees his percentage of the smaller sizes of coal is higher than the average. His coal differs physically from that of the others and his machinery must be changed to suit. He modifies the speed of his rolls and the difficulty is overcome. A mine foreman finds his haulage per ton of coal is above the average. He must look to a different distribution of his trips. He finds considerable time is lost during a day in the accumulation of little delays caused by the derailment of cars at principal points of his haulage roads. Defective frogs are the cause of it, though his frogs are frequently renewed. But the point of the ordinary mine frog is soon ground away by the combined action of mine dirt and car wheels. He substitutes a device of his own, merely a casting in the shape of a frog, pivoted at the heel, while the point is the thickness of the rail, and by a suitably arranged lever can be swung in line of either track. Thus the continuity of the rail is not destroyed. He overcomes the derailment difficulty and at the same time increases the life of his rolling stock. This breaker boss sees the percentage of coal going to the refuse bank is too high. His jigs must receive attention. Another notices he is using more lubricating oil than his neighbors. He must question his engineers. This one sees that the amount of nails and spikes he uses is far above the average. In the future he will keep them under lock and key.

Tact is required in handling a couple of hundred men of divers nationalities. A foreman in an anthracite colliery noticed that his tonnage mined per keg of powder had fallen back. The character of the coal had changed somewhat and the miners evidently were not suiting

their mining to the new conditions. A little quiet investigation convinced him that a larger grained powder was more suitable for this coal. To tell his old miners they were using too much powder would be practically wasted information. But he went around it differently. He made a slight bet with a miner, one of the most experienced, and a sort of authority on mining among the men, that he could mine more coal with a smaller charge of the new powder than the miner could with the old. He won his bet and incidentally the miners to the use of the new powder.

Custom is a hard thing to combat. It has been the practice to construct numerous small settling ponds at the breakers to collect the wash water used in washing the coal, and to allow the dirt to settle before allowing the water to escape. The tanks were generally insufficient in number, but answered the purpose in taking out such an amount of dirt that the neighboring streams were not too much polluted. Sufficient wash water of late years has become a serious consideration and it becomes necessary to use the water over and over again. Now we have two or three large tanks of sufficient capacity to hold the entire output of a day. One-half a day's wash water is allowed to settle while another tank is filling. A scraper line built in under and for the entire length of the tanks causes them to be quickly emptied while the comparatively clean water is drawn off through a pipe and pumped back to the breaker. It is much more satisfactory than the old way and much cheaper than the construction of numerous small tanks.

The introduction of rope transmission has greatly simplified matters in regard to the arrangement of the machinery in a breaker. The flexibility of the system has affected a considerable reduction in the first cost of a breaker. Formerly shafts, countershafts, spur and bevel gears were used, now the power is taken direct from the main shaft to the machinery to be driven. The gain in efficiency is at once evident, to say nothing of the saving effected both in cost and room in the elimination of numerous complicated driving arrangements. Someone saw a little in advance of his brothers and had his main shaft entirely outside the breaker. It was placed in the engine-room and on the same level as the engine, the latter being directly connected to one end, while suitable pulleys are arranged along the shaft from which the various ropes lead. Another gain in efficiency, cost and simplicity.

Circular screens have always attracted the attention of mining men on account of the amount of space they take up. Only about one-fifth of a circular screen is engaged in screening coal, and screens 6 and 7 ft. in diameter take up room, are costly and expensive to keep up. Shaking screens are taking their place. Six of them can be installed at the cost of one circular screen and take up little space. Probably a few short circular screens of a small diameter and with cast iron segments may be used in removing flat pieces of coal, which, on account of their shape and resemblance to slate, are considered of an inferior variety and are broken up into smaller sizes.

A modern breaker presents a marked contrast to those erected but a few years ago. Competition has rendered decreased first cost necessary. The modern breaker may claim at least an increased efficiency of 15 per cent. per size when compared with one erected 6 or 7 years ago. The scarcity of timber has made large breakers extremely costly, and the tendency is toward compactness. Spiral chutes of iron are taking the place of the long, straight wooden ones. The long lump coal and rock shutes are done away with, these being passed from the top of the breaker to the bottom by means of the spiral at the same speed as formerly, while the space occupied is small.

One foreman uses the water used in cooling his air-compressor as feed-water for his boilers; another to supply the miners with warm water in their wash shanty.

The efficiency of the boiler plant at a colliery is important. When automatic stokers are employed, inclined grate bars are used, which lessen the work of the fireman, while inclined ash pits discharge the ashes into a scraper line, doing away with the use of ash men. In one boiler house the men are using a little device to lessen their labor. It is merely a round piece of iron bent in the shape of a U, the ends being curved so as to hook onto a pipe that runs in front of the boilers. The lower part is placed at the same height as the fire door. It formed a rest for the heavy pokers and scrapers used in cleaning the fires, acted as a fulcrum, while the men could use both hands in manipulating the tools, the weight of the tools being borne by the U-shaped iron. The dump cars in use at this same colliery are novel in construction. The body of the car is on rollers and can be slid forward slightly before dumping, thus depositing the refuse at some distance from the rail. This made less work for the dump men, as the truck need not be shifted as often.

One foreman has a simple little device to put on the heavy belts on their pulleys should they slip off. It was a piece of iron with a hook at either end, one end hooking on the edge of the pulley, the other on the far side of the belt. On the machinery being started the belt was pulled in place. This man improves on the tipples in use at the breaker, whereby the momentum of the fast moving mine cars is absorbed by the tipple without imparting a disastrous shock to the mine car itself. His bill for car wheels and axles has been reduced a hundred per cent.

The mules used about a colliery as a rule do not receive the proper amount of attention. It seems to be taken for granted that as a mule can stand more work and abuse than a horse he should receive that much less care and attention. This particularly applies to mules kept underground. The writer has been in mines where the mules were forced to drink the mine water, no provision being made to supply them with fresh water. Or the stables are drafty and ill-ventilated, with little attention paid to the quality of food furnished. While to find any more attention paid to the mules than flinging their food to them and keeping their shoes on is not common. A notable exception to this manner of caring for mules was the system installed at an anthracite colliery some years ago. The mules were in excellent condition and the envy of the foremen in adjacent collieries. The foreman in charge was termed a particularly lucky man in getting such stock, in having few accidents and little sickness, while his cost per ton of coal hauled was much lower than others. The increased efficiency of his mules was due to the attention paid them. The number of mules he had was less than that of other collieries of the same capacity, yet he had a sufficient number to allow for accidents and to see that no one mule was overworked. No mule was required to work days of 18 and even 20 hours. The best food and water procurable were furnished them. A thoroughly competent stable boss saw that each mule coming in from a hard day's work covered with perspiration and splashed with mud was carefully rubbed down and his legs washed off. A thorough inspection was made to find any little cuts or bruises; if any, they received immediate attention. Each driver was held rigidly responsible for the condition of his mules. A satisfactory explanation had to be given to account for any hurts. Any ill-treatment merited instant dismissal. His stables inside were well ventilated, properly drained and free from drafts. No one mule was kept underground more than a year at a time. He then received a month's vacation in the form of some light work on the surface. This was given more to let the mule have the benefit of the sun. These seemingly little things in the care of his mules was wonderfully reflected in the amount of work obtained from them. His cost of haulage was far below the average.

At a mine where the hoisting is done from a shaft the device formerly used in locking the cars on the cage was a drop rail. That is the section of the rails on which the car stands drops two or three inches lower than the rest of the rail on the cage being lifted off its keeps. While this is an excellent safety device, considerable time is lost during a day on account of it. Each cage hoisted must be lifted slightly above the landing place, the engine reversed and the cage lowered upon its keeps, in order that the sunk rails may be lifted to the level of the others and allow the car to run off. It means a fraction of a minute each time, and where there are a thousand cars hoisted it is an hour or more each working day. The cages in use now have no drop rail, the cars being locked on by means of blocks which extend over the rails in front of the wheels. The blocks are so connected by levers that the movement of one lever places and locks all.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

LEASE OF MINERALS NOT VIOLATION OF AGRICULTURAL LAWS.—A lease of agricultural land for a term of 20 years for mining purposes, with a covenant precluding lessee from doing any other business on the premises, and permitting land not needed for mining purposes to be used by lessor for agricultural purposes without hindrance, except as required for mining purposes, is not a violation of a constitutional prohibition against leasing agricultural lands for a longer term than 12 years.—Massachusetts National Bank vs. Shinn (57 Northeastern Reporter, 611); Court of Appeals of New York.

DUTY ON TIN DROSS.—Tin dross is dutiable at the rate of 20 per cent. ad valorem under paragraph 183, Act of July 24, 1897, and is not entitled to free entry under paragraph 683, as tin in bars, blocks, pigs or grain or granulated. Tin dross is the refuse obtained by skinning the pots in which tin is smelted. It is not tin in any of the forms mentioned, but a metallic mineral substance in a crude state, or a metal unwrought, the by-product of tin, and not being especially provided for, it falls within the provisions of paragraph 183.—Appeal of I. McNiven from Collector of Customs at Niagara Falls, N. Y.; United States Board of General Appraisers.

DUTIES ON IMITATIONS OF PRECIOUS STONES.—Articles, under 1 in. in diameter, composed of glass or paste, striped or otherwise ornamented in multicolors, such as blue, green, red and yellow, in combination, and having either double convex faceted surfaces or one convex faceted surface, the other flat and coated with a preparation of bronze powder, and which are called imitation Japanese "lucky stones," are dutiable at 45 per cent. ad valorem under paragraph 112, Act of July 24th, 1897, and not at 20 per cent. ad valorem as imitations of precious stones under paragraph 435 of said act.—Appeal of Overton & Company from Collector of Customs at New York; United States Board of General Appraisers.

CONSTRUCTION OF LEASE OF GAS AND OIL LANDS.—The owner of land granted to another the oil, gas and other minerals underlying the land, on condition that the owner should have a certain share of the oil, gas or other mineral so mined. The grant provided that if no well was completed by the grantee within 90 days from and after the date of the grant, the same should be null and void, unless the grantee should pay a certain rental for each year the well was left uncompleted. It was further stipulated that the grantee should have the privilege of surrendering the lease by paying the rental on the land up to date of surrender. It was held that, since it was optional with the grantee as to whether or not anything should ever be done by him, and as no well was made, there was no obligation to pay rent, or to fix compensation for oil or gas.—Brooks vs. Kunkle (57 Northeastern Reporter, 260); Supreme Court of Indiana.

WITHDRAWAL OF LEAD FROM BONDED SMELTING AND REFINING WAREHOUSES.—A circular from the Treasury Department under date of January 29th, 1901, says: "It having been represented that some diversity of opinion exists as to the interpretation to be placed upon section 29 of the Act of July 24th, 1897, and article 1080 of the Customs Regulations of 1899, I have to inform you that these provisions of the law and regulations are to be construed as authorizing not only the withdrawal of the entire amount of smelted or refined metal 'set aside' either for exportation or for consumption, but any portion or portions of such product may be withdrawn for consumption.

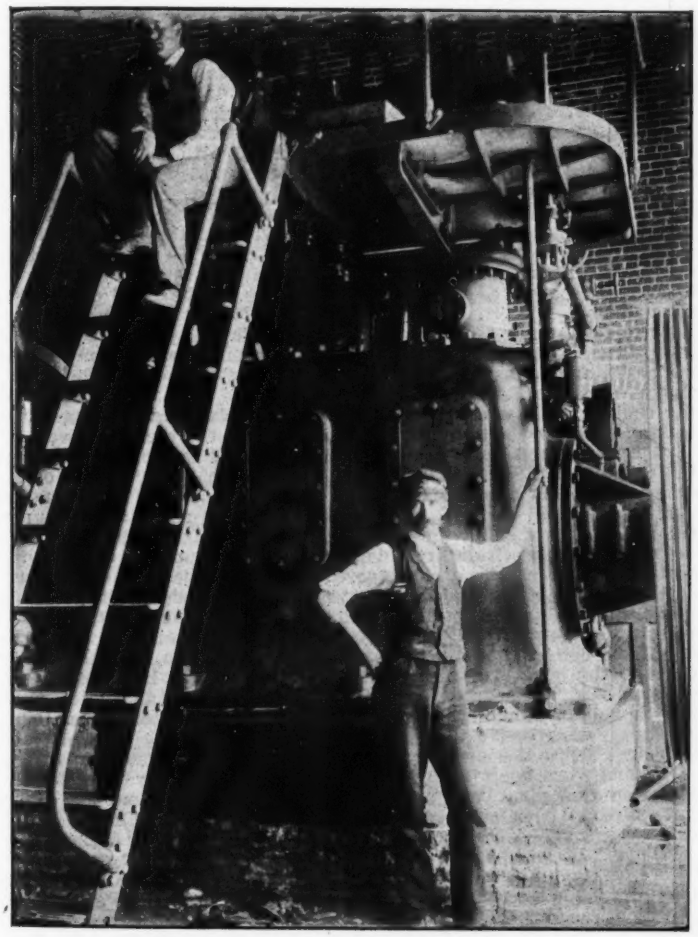
"The law and regulations of the Department are further to be construed as authorizing the diversion for consumption of smelted or refined metal 'set aside' for entry for warehouse and withdrawal for transportation and exportation; provided that not only the lead covered by such entry but also the 10 per cent. allowance (which will be ascertained by dividing the actual weight by 0.9) shall be charged with duty."

ELECTRIC LIGHT AND POWER WORK AT BUTTE, MONTANA.*

By J. R. Cravath.

Butte is of interest as being one of the best markets for electric power in the Rocky Mountain range on account of the large number of copper, silver and lead mines and reduction mills, and the good demand for light that comes from a prosperous mining town. There is at present only one water-power plant, supplying the town, the balance of the electric power being supplied from steam plants at Butte. The Montana Power Transmission Company owns a water-power plant, on the Big Hole River, over 20 miles from Butte, and sells power to the Butte Lighting and Power Company. The transmission is at 16,000 volts. The sub-station in Butte also contains a steam plant, which supplies what power cannot be furnished by the water-power plant. Max Hebgen is in charge of the operation of both companies.

The 16,000-volt transmission line has been remarkably free from interruption. In the first year of operation, which ended December 15th, 1900, there was only one break in the service, and that was due to a every unusual occurrence. In blasting for a sewer in Butte, under the line, some rocks were blown up through the line and broke it down. The trouble experienced elsewhere from the shooting at insulators and throwing things across the lines by boys, has not been felt at Butte. This is no doubt because the line runs across an unpopulated district



WESTINGHOUSE GAS ENGINE, 300 H.-P., IOLA, KANSAS.

over low mountains. The line consists of two three-phase circuits on porcelain insulators, on a six-pin cross arm. Above the cross-arm carrying the high-tension lines is a second cross-arm carrying two barbed wires for lightning protection. A third barbed wire is put on a pin on the pole top. These are not fastened with staples, as is the common practice, but are on glass insulators just as any line wire. They are grounded every fifth pole and at streams. The object of putting the barbed wire on insulators is to prevent corrosion and breakage of the wire. The barbed wire has so far proved a very efficient protection against lightning, although in the country through which the line passes many trees are splintered from that cause. Although in service only one year, current was on the line two years preceding that to prevent wire being stolen and furnish light at the water-power plant from Butte during construction. There has been so little trouble on the transmission line that regular patroling has been abandoned. Leakages are made apparent from the sound of the telephone, and when the telephone indicates a leak men are sent out to fix it. The telephone line is on the same poles as the transmission line. There are no fuses in the 16,000-volt circuit or on the generators.

At the sub-station there is also a steam-generating plant. The light and power distribution in Butte is made at 2,200 volts, three-phase, and 500 volts direct-current. The lighting circuits were formerly on a single phase system, and when the change was made to three-phase the baling of circuits was done by plugging various feeders onto the three-phase mains at the central station switchboard in such a way as to maintain the balance of the load on the circuits. The distribution of feeders to secure a more perfect balance can be changed at any time.

For power purposes, both induction and synchronous motors are used, and circuits separate from the lighting are run for this purpose. Most of these large three-phase motors are 2,000-volt machines, run direct from the primary circuit. A large amount of power is also furnished by a 500-volt rotary converter. Synchronous motors have been intelligently placed on lines having induction motors, so that the power factor averages 87 per cent. The strength of the field excitation on these synchronous motors is adjusted by the company at the time the motors are installed, so as to give a leading current on the line whenever the capacity of the motor is large enough to permit this. These synchronous motors are mostly single-phase alternators, rewound for 2,000 volts three-phase, and are giving excellent service. The frequency being 60, these motors run about half their former speed as dynamos, which is more suitable for a motor than the former high speeds. Two of these synchronous motors are belted to old 500-volt generators for carrying the power load when the rotary needs to be stopped, so saving investment in one new rotary.

As mentioned before, the lighting feeders are balanced between the legs of the three-phase mains by a plug switchboard at the station. This includes constant-current alternating arcs. Each incandescent lighting feeder supplies one district. Each district is numbered, and where there is more than one transformer in a district they are run in parallel on the same secondary network. The secondaries are three-wire 105-210 volt.

The regulation on the system is remarkably good, considering that a water-power plant is furnishing part of the power, and that during daylight hours, 75 per cent. of the load is power which is fluctuating greatly. Mr. Hebgen lays much of the credit for the good regulation to heavy flywheel action. Lombard water-wheel governors are used, and their performance is excellent, but Mr. Hebgen considers good heavy flywheels in the shape of revolving field alternators as essential in damping the small pumping action of a governor, which pumping with a fluctuating load knocks out all attempts at close regulation. The water wheel regulation is as good now as that on a first-class steam engine.

As mentioned before, there are no fuses either on the generators or high-tension lines. Oil switches are being put on the generators. This omission of all automatic-circuit opening devices is partly on account of the danger of temporarily shutting down the whole system by blowing of fuses, and partly because it is not thought desirable or safe for the apparatus to suddenly open the main circuit. It is believed that as between a short circuit on one of these large alternators and a sudden open circuit that the short circuit is the least harmful. In case of short circuit these generators will give a little less than 50 per cent. of their full-load current. In connection with this the question naturally arises, what about the strain on an alternator when it is being cut off the bus-bars and put out of service? In this company's plants this is being provided for by an attachment to the main circuit oil switch, whereby the alternator field current is cut down the instant the main armature circuit is opened.

The water-power plant on the Big Hole River, 21 miles from Butte, has four 750-Kw. 60-cycle, 800-volt revolving field three-phase alternators, driven by horizontal Niagara type Leffel turbines, running 180 revolutions per minute. The working head of water is 58 ft. The transformers, which step up from 800 to 16,000 volts, are General Electric air blast.

As said before, the average power factor on the system for 24 hours is 87 per cent. This figure is not a guess, but is the result of actual tests by an interesting method. The method of determining the power factor is this: The plant is operated in the ordinary way, and the ammeter and voltmeter readings are taken to give the apparent watts. Then one of the generators at the power house is started up and run as a synchronous motor. The field of this motor is over-excited so as to give a leading current. The effect of this is to overcome induction and bring the power factor up toward unity. The excitation is increased until the power factor is unity, which is indicated by the ammeter reaching its lowest position, on a given load. The observed watts will then be the true watts, and can be compared with the previous reading. At present writing, when the load is not too heavy to spare it, one generator is run as a synchronous motor with heavily excited field on purpose to bring the power factor near to unity. In this way the one idle generator at the power house takes care of part of the idle current on the system, and the other generators are run fully loaded on useful current.

*Abstract of article in the "Electrical World and Engineer," New York, January 26th, 1901.

ABSTRACTS OF OFFICIAL REPORTS.

General Chemical Company.

In the year ended December 31st, 1900, the net profits were $1,258,946, which, added to the $478,710 surplus on December 31st, 1899, makes a total of $1,737,656. During the year 1900, dividends aggregating $779,079 were paid ($493,715 being paid on the preferred stock and $285,364 on the common). There was also charged off on plant account $69,470, and $688,897 was expended in construction and betterments. The balance transferred to surplus account on December 31st, 1900, was $889,106.

The company acquired three new plants during the year. It has felt the falling off in the activity of the consuming trade of the country as compared with the last few months of 1899. This has been compensated by increased economies and not by higher prices, in accordance with the policy outlined in the company's first report. The present condition of the company for economical production and distribution, according to the directors, is better than ever, and the organization is complete and harmonious.

In the balance sheet of December 31st, 1900, the assets are given as: Manufacturing investment at cost, $12,195,688; investments in other corporations, $2,309,554; merchandise on hand, at factory cost, $1,285,267; accounts receivable, $865,047; cash, $325,726; unexpired insurance premiums, stamps, etc., $19,351; total, $17,000,634. The liabilities are:

Capital stock (preferred), $8,260,000; common capital stock, $7,167,900; accounts payable, $559,728; dividends accrued, $123,900; surplus, $889,-106; total, $17,000,634.

Tennessee Copper Company, Tennessee.

The treasurer's report of receipts and expenditures from June 15th, 1899, to January 1st, 1901, shows receipts as follows: Cash received at time of incorporation, $1,000,000; interest and discount, $32,931; royalty on iron ore, $11,250; total, $1,044,181. Expenditures were as follows: Remittances to the Tennessee office, $698,221; incorporation and general expenses, $51,449; cash with banks and bankers, $263,261; real estate purchased, $31,250; total, $1,044,181.

During this period work has been in active operation upon the company's property in Tennessee, both as regards development and the necessary plant and equipment. The company's principal energies have been devoted toward opening up the ore deposits of the property to such a point as to permit of the economical extraction of the ore. Only one half of the year 1899 was available for mine development. The work done was: Shafts, 748 ft.; cross-cuts, 1,039 ft.; drifts, 1,941 ft.; raises and winzes, 717 ft.; total feet, 4,445 ft. Of this 995 ft. were done in 1899 and 3,450 ft. in 1900.

Of the above work all of the shafting was done in foot-wall rock, thus ensuring the permanency of the shafts in case the mines should be worked on the caving system. Of the cross-cuts above 600 ft. has been in rock, the balance in ore. All the drifting and raising has been in ore, and in addition to the above some 80 ft. of the stope crossing has been done preparing certain stopes for active mining. During the year 1900 about 1,246 ft. of diamond drilling has been done.

It is estimated that there is in sight in the mines of the company, blocked out and ready for stoping, about 800,000 tons of ore, and there is a reasonable assurance of there being 700,000 tons in addition, all of which is above the third level. The extension of the various drifts on the second and third levels will be necessary to put this remaining amount of ore in position so that it may be stoped. The bottom levels of the mines look exceedingly well, and everything indicates the continuation of ore in sight.

Equipment has been provided for the mines on a sufficient scale. A brief description will be found elsewhere.

Le Roi Mining Company, Limited, British Columbia.

The report of this company for the year ending June 30th, 1900, as issued from the London office, shows total receipts from smelter, rents, etc., of £110,968. Management expenses in Rossland were £9,843, and in London £7,755, leaving a balance of £93,969.

For the six months ending June 30th, 1900, the ore production was 51,336 dry tons, the contents being 23,105 oz. gold, 47,489 oz. silver and 1,500,903 lbs. copper. The gross value of this ore was $738,251, and the average value $14.39 per ton. The number of days worked was 116 and the average daily production was 443½ tons. The average cost of mining was $3.133 per ton, as shown in detail below:

	Labor.	Supplies.	Total.	Per ton.
Stoping	$72,961	$19,613	$92,574	$1.800
Power	7,857	12,590	20,447	0.398
Mine works	12,750	5,727	18,477	0.359
Mine equipment	.....	3,563	3,563	0.069
Ore sorting and tramming	12,031	840	12,871	0.250
General expenses	.....	.....	13,196	0.257
Totals			$161,128	$3.133

During the five months July to November since the close of the fiscal year, ore has been produced containing 30,136 oz. gold, 64,967 oz. silver and 1,049 tons copper, the total value being $1,110,500.

The report of General Manager Bernard McDonald says: "Your company owns the Le Roi, Black Bear, and Le Roi Star Fraction mineral claims, which cover an area of 70.30 acres. Traversing the length of these claims are three prominent veins, known as the North, Middle and South or Black Bear veins. These veins range in width from 20 to nearly 100 ft., and at places they are filled with shipping ore to width of 80 ft. or more, 35 to 45 ft. being the average width of the main ore shoot as stoped and shipped. Nearly all the ore, up to June 30th, 1900, shipped from the mine has come from the Middle Vein. In last January, after having an accurate survey made of the floor areas of the ore shoots as then opened on the various levels, I estimated that the Middle Vein contained 1,500 tons of shipping ore for each vertical foot. Extensions made since of the floor areas then opened show a considerable increase in dimensions, and the contents of the vein can now be said to very closely approximate 2,000 tons of the average grade of shipping ore for each vertical foot of the vein. When this calculation applies to sections of the vein above or below the 700 and 800 ft. levels where the surveys are made, it is to be assumed that the grade and dimensions of the ore bodies will remain the same as that exposed on the levels named. Between these levels and the surface, this may be accepted as a proved fact. Below these levels, it is a reasonable assumption, which, of course, awaits the advent of development work for actual proof.

"On assuming the management of the mining operations of this company last December, I found that the average output of the mine for the preceeding six months had been 280 tons daily, and 257 tons per day for the preceding six months, or an average of 268 tons per day for the preceding twelve months. After making a thorough examination of the mine workings, I concluded that the output should be trebled with an adequate plant, which would permit of the exploration and development being kept sufficiently in advance of the exhaustive work of stoping. Such a plant has been carefully designed to meet the present and future requirements of the mine, and was purchased after competitive tenders being had from the leading manufacturers of mining machinery in the United States and Canada. This plant is now being installed, and when it is completed the output of the mine can be easily maintained at from 20,000 to 30,000 tons per month. Meantime, there is no difficulty in maintaining the average output of the mine at 600 tons per day with the old machinery.

The following is a brief outline of the plant under construction, or just completed. The compressor plant in operation up to the present time consists of a 22-in. by 36-in. by 48-in. cross-compound-condensing steam-driven air compressor, having a capacity of forty 3¼-in. machine drills at sea level. To this plant has been added another similar compressor of equal capacity, which now only awaits some small parts in transit from the manufacturers to complete the installation, when it will be ready for service. A building of suitable dimensions and iron-covered has been erected to contain this valuable machinery. The complete plant now comprises two 22-in. by 36-in. by 18-in. straight line compound-condensing air compressors, and one 16-in. by 18-in. straight line compressor, the whole plant having a capacity of eighty-seven 3¼-in. drills at sea level. The whole plant, and the building inclosing it, is rapidly approaching completion. The power generated by these compressors is to be transmitted to the Le Roi Mine workings through one 8-in. and one 6-in. line of standard wrought-iron pipe. These lines have already been laid from the compressor plant through the Black Bear Tunnel and down through the Combination Shaft to the workings on the 800-ft. level. From these main trunk lines, branches of smaller size extend along all the levels in the mine.

"During the year two 80-H. P. boilers were added to the hoisting plant of the mine. These boilers have been in service for the last nine months, and are still in prime condition. In the future all the boiler plant is to be located in one building, which is 160 ft. distant from any other building. The location of this plant at this spot was made with a view of centralizing the fuel required at the most accessible point, and minimizing the risk from fire by its isolation and distance from other buildings. Covering this plant is a building 40 ft. by 120 ft., and the plant itself consists of 9 boilers, in three batteries of 3 boilers each, and each boiler of 125 H. P. Two lines, one 8 in. and one 6 in., consisting of standard wrought-iron pipe, with extra heavy fittings, have been laid from the boiler-room to the various engines. All of these pipe lines are to be thoroughly insulated with asbestos covering, and provided further with suitable protection against the weather.

"The new hoisting engine is now being erected at the shops of Fraser & Chalmers, in Chicago. This hoist is of the latest and most efficient type of hoisting engine, and is provided with all the latest improvements. The steam cylinders are each 24 in. by 60 in., operated by Corliss valve gear. There are two winding drums, each 10 ft. in diameter, directly actuated by the steam cylinders. The rated capacity of the engine is 1,000 H. P., capable of lifting four tons at the speed of 2,000 ft. per minute from the depth of 3,000 ft. The present 20-in. by 42-in. direct acting hoist will be removed from its present site at the old shaft, and re-installed under the same roof as the large hoist. In this new position it will be used for the purpose of hoisting and lowering timber, tools, waste, and men to the various mine workings, thus leaving the new hoist for the work of hoisting the ore exclusively.

"A crushing and sorting plant is to be installed in the head frame at the Combination Shaft, and is to have a capacity equal to that of the two hoists. The head frame that is being erected at the combination shaft is to be 85 ft. high, and built in the most substantial manner, calculated to withstand the heavy strains due to the rapid lifting of heavy loads of ore from great depths. Two ore bunkers, each having a capacity of 1,000 tons, are being erected. One of these is being erected at the railway, from which the cars are to be loaded. The other is being erected in close proximity to the Combination Shaft, and will receive the ore delivered by the travelling sorting tables, from which it will be delivered to the buckts of the aerial tram, and carried by them to the bunker at the railway. A contract has been let for the erection of an aerial tram connecting the two ore bins above described, and capable of handling 75 tons per hour when operated by one man. The tram will receive the ore at the upper or loading terminal, and discharge it into the lower or railway bunker. The guaranteed capacity is 75 tons when operated by one man. The preparatory work for the reception this plant was begun in last January. Numerous delays have already been suffered on account of the non-fulfilment of the contractor's agreement as to the time delivery of the machinery.

"During the first six months of the current year, a steady production of ore, averaging 279.5 tons per day, was maintained. The total production for the six months amounted to 51,448 dry tons, the gross value of which was $702,877. During the last six months of the current year, owing to labor troubles, there was no ore produced at the mine from February 9th to April 16th, a total of 66 days. Notwithstanding this, however, 51,336 dry tons of ore were produced, having a gross value of $738,751, the daily production tduring the time the mine was operated amounting to 442.5 tons. On April 16th the mine recommenced operations after the shut-down, the whole staff and working forces having been completely reorganized. The object of this reorganization was to bring the production of the mine up to the maximum capacity of the present machinery equipment. This output can be easily maintained with the present plant, and increased to from 750 to 1,000 tons per day when the new machinery is in operation.

"Owing to the lack of precise data, it is somewhat difficult to obtain the exact cost per ton for ore production previous to January 1st, 1900. From the recorded information available, however, the cost per ton for mining and loading on railway cars, on the tonnage produced, appears as $5.55 per ton of 2,000 lbs. During the months of January and February this cost was slightly reduced, but since the reorganization of the working forces was completed a distinct reduction has been brought about. The present cost does not exceed $2.50 per ton, a reduction of 100 per cent. over the first nine months of the year. This reduction of cost has been effected with the old plant, and will be still further reduced when the new plant goes into service. It is evident that ore can be stoped and placed on cars for $2 per ton, and the whole mining cost, including mine development, depreciation, insurance, etc., is not likely to exceed $3.25 per ton.

"A spur of the Canadian Pacific Railway is laid in close proximity with the Le Roi and Combination Shafts on the Le Roi Claim, and the second-class ore dump, giving railway facilities to the mouths of the shafts and for transportation of ores to the Trail Smelter, if that should be desirable. The smelting works of your company are located at the town of Northport on the banks of the Columbia River, in the State of

Washington, 18 miles from Rossland, over the Red Mountain Railway. The situation is admirable for a large smelting works, as the facilities for economic smelting are very favorable. Abundant deposits of lime of that character required for smelting flux exist in the near neighborhood of the smelter. In the smelting of Rossland ores, 20 per cent. of the furnace charge requires to be lime, hence the importance of having this delivered cheaply at the smelter. The maximum capacity of this smelter is about 650 tons per day, although in continuous operation, this capacity cannot be obtained on account of the incapacity of one part or another of the plant; in other words, there is not margin enough of power over the nominal capacity to insure a continuous output at that rate. Additions to the smelting works in the line of machinery, furnaces and general equipment of sufficient capacity to bring the smelting power up to 1,250 tons per day are now in course of construction, and will be pushed through to completion as vigorously as possible. Besides the 1,250 tons, there will be space, power and water provided for the subsequent addition of two furnaces of 350 tons each."

THE ORIGIN OF VEIN CAVITIES.

Written for the Engineering and Mining Journal by Frank L. Nason.

(Concluded from page 179.)

While it is usual to find an abundance of either lava, trap, granite or other igneous rocks in regions of great disturbances, as manifested by faults, extensive faulting may occur without eruptives being present. The converse, however, is rarely true. Eruptions of igneous rock through other and older eruptives, as well as through sedimentaries, and in either case more or less irregular openings often occur on the plane of contact between the two rocks. Hence the name.

The term "flat vein" is often used to designate contacts in sedimentaries as well as bedded deposits. This tends to confusion where no confusion needs to exist. A vein, to repeat, even when simulating a

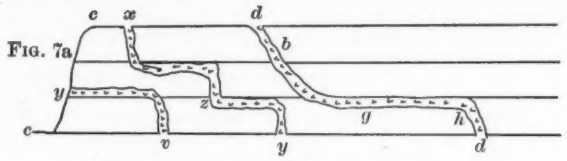


FIG. 7a

FIG. 7b

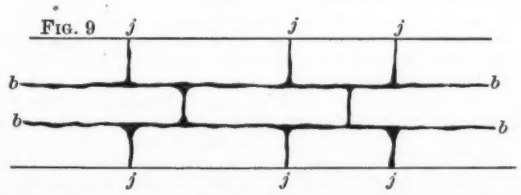


FIG. 9

bedded deposit, is still a vein, is secondary, and successful exploitation and working require that its nature be recognized at the outset.

Of the many phases which a contact vein may assume, two, which may be taken as typical are illustrated by Figs. 7, a and b. Fig. a shows a dike of eruptive d-d breaking through horizontally bedded sediments. At the point h in the dike breaks across successive strata, at g interpolates between strata and finally at f turns, breaking through the strata and appearing on the surface. The flat contact at g may extend for a long distance, exhibiting but one flat contact, or it may take the form of a series of flats and steps, as shown at x-y. Again, the dike may be interpolated between strata, only appearing at y as an outcrop by erosion, as in canyon wall c-c, Fig. 7a.

The above phenomena may appear, as has already been pointed out, on perfectly horizontal or but slightly tilted strata. In Fig. 7-b another phase of contact phenomena is exhibited. In this case there is an evident fault along the line b-b'. Along this fault plane an eruptive has forced its way to the point e, where it has lifted the stratum ss, appearing as an outcrop at d'. This is a very common phenomena. In cases of this kind mineral is often found at m, indicating a true vein, and at d', where is evidently a contact. Other phases of contact phenomena are shown in Fig. 4 d-d, and in Fig. 5 c-c. As a matter of fact, the contact in Fig 4 may, by erosion through the lines e-e and e'-e', be almost identical in appearance with the phenomena shown in Fig. 7a and Fig. 7b.

The above contact phenomena, and other modifications not specified, are all referable to igneous agencies pure and simple. To avoid possible confusion another phase of the question is here introduced. I refer to the interpolation of mineral deposits between sedimentary strata, wholly independent, so far as is at present known, from igneous action. These contacts are best illustrated in the zinc and lead regions of Wisconsin, Illinois, Iowa, Missouri and Kansas. In these States

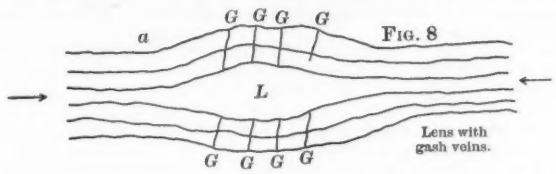
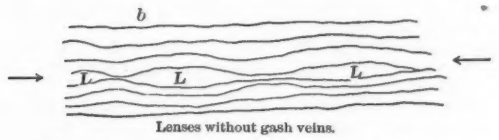


FIG. 8



Lenses without gash veins.

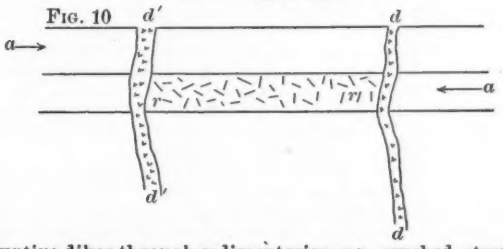


FIG. 10

d-d, d'-d' eruptive dikes through sedimentaries; r-r, crushed stratum due to differential movement; arrows a, a.

circulating waters have taken advantage of the parting planes between strata to cut out cavities, by solution, in which mineral has, either contemporaneously or subsequently, been deposited. All of these States, except Missouri, are wholly free, so far as is known, of eruptive rocks in the vicinity of the lead and zinc deposits. While these are exceptions, the safest rule to follow in distinguishing between these two distinct classes of contact openings is one based wholly on the presence or absence of eruptive rocks. If eruptives are present, refer contacts to igneous agencies; if absent, to the circulation of ordinary meteoric water.

Lest the point of this be missed I will specify my understanding of it. Gold and silver, gold especially, are primarily derived from deep-seated sources, i. e., fissure veins more or less intimately associated with igneous rocks, never wholly dissociated from them; while lead, zinc, iron and copper as sulphides, oxides or carbonates may be formed by water under ordinary temperatures. It therefore follows that if a contact can be proved to exist apart from igneous intrusives it is useless to expect ever to find a deposit of either gold or silver-bearing ores.

Gash Veins and Lenses.—Though these two are distinct in appearence they may be intimately associated, though it does not necessarily follow that if either is proved to exist the other will be found associated. In other words, the same cause may produce either a gash vein or a lenticular opening or both. Fig. 8, a and b, shows graphically the conditions under which these may be produced. In a the compressing forces have been carried to such an extent that there is not only a buckling of the strata at L, but the underlying and overlying strata have been fractured, as at G-G, etc. These gashes may or may not show originally at the surface.

It is also true (see b) that the tumerscense may not show the buckling Gash veins may also result from the enlargement of joint planes by solution, the solvent being ordinary meteoric water.

Joint and Bedding Fissures.

Openings along bedding planes have already been referred to as occurring between separate strata of sedimentary rocks. They are simple and easily recognized. Nothing more need be said of these further than that such openings, although more usual in sedimentary rocks, are by no means confined to them. Successive flows of traps, trap flowing over granites, gneisses and sedimentary rocks are almost certain to have parting planes, and these are often mineralized. There may be times when it is of the utmost importance to distinguish between these two classes of openings. Strictly speaking, the term bedding plane should be used only in reference to sedimentary rocks. But the economic distinction lies in this. If bedding planes are mineralized, as is often the case in the Mississippi River Valley States, as before referred to, they are simple contacts, no more, no less. They need not be prospected for the precious metals. It is only when they have come within the radius of igneous action that such deposits should be sought in them. And for this reason the prospector must try all means to determine this point. In parting planes between different flows of igneous rocks the subsequent mineralization, if it exists, may have been performed by meteoric water, as in the case of sedimentation, pure and simple. Contacts and bedding planes in connection with igneous rocks are of the utmost commercial importance, ranking equally with, if not ahead of, fissures.

It is true, also, that "joints" are found associated with both eruptives and sedimentaries. In the former case joints are produced by cooling and consequent shrinking of the eruptive; in the latter, more often by pressure. As a rule joints are mineralized, if at all, by meteoric waters and are of slight economic importance. Although scarcely necessary, joints and beds are shown in Fig. 9.

Impregnations.—In viens of segregation or impregnation, the fissures or openings may be due to one of three causes, or by a combination of two of them. First, a more or less porous rock shivered by small seams, Fig. 10, r r; second, an open textured rock; third, a granular or crystalline rock with some of its mineral components soluble.

The first case may be wholly due to dynamic agencies, the last effects of forces tending to produce step faults, capillary planes due to com-

pression. Whatever the cause, the circulation of water along these planes may not only mineralize the minute parting planes, but may even penetrate the rock itself, especially if the two conditions set forth in the second and third are present.

In conclusion, in this paper the more important fissures in which mineral deposits are found have been treated, to a certain extent, as if every mineral-bearing fissure was in a sharp clean-cut class of its own. Practically nothing is farther from the truth in general. Fault fissures, major or minor, are usually readily recognized, and the same may be said of contacts, if care is taken to separate contacts from beds; but in every other case there is evidence of joint, gash or segregations and lenses in existence, and how to classify a deposit or a series of veins is often a perplexing problem.

To attempt to lay down an exact series of rules would be equivalent to writing the biography of an experienced mining engineer grown old in the business. The most that can be done is to lay down principles and then practical experience must be the teacher of the almost infinite number of combinations possible.

THE TENNESSEE COPPER COMPANY'S NEW PLANT.

The Tennessee Copper Company some time ago bought a large property in the Ducktown District in Tennessee and has since been engaged in developing the deposits of copper ore on a large scale. The company has now nearly completed a large plant for handling and reducing the ore. Through the courtesy of the company we are able to present below a brief description of this plant and its present condition.

At the company's Burra Burra and London shafts new shaft crusher houses 100 ft. high are almost completed. Each one of these contains a crusher 18 by 36 in., a rotary screen 42 by 144 in., a Robins picking belt 36 in. by 33 ft., all driven by a 9-in. and 18-in. by 12-in. Ball & Wood compound engine. Each shaft crusher house has bins with a storage capacity of 500 tons each. At the Polk County shaft the old crusher building has been entirely repaired and a 36-in. Robins picking belt introduced. The present equipment of boilers, conveyors and hoisting engines is sufficient for the requirements of the Polk County and London shafts.

At Burra Burra shaft entirely new equipment is being installed; this consists of a brick boiler house containing 300 H. P. of boilers made by the National Water Tube Boiler Company and intended to carry 150 lbs. pressure. A brick engine house has been built, containing a cross-compound two-stage air compressor, with steam cylinders 14 in. and 28 in. in diameter, air cylinders 15 in. and 24 in. in diameter, stroke 42 in.; a twin 18 by 42-in. first-motion hoist, provided with two cone drums. In addition to the above the necessary condensers, feed pumps, heaters, etc., are provided.

A standard-gauge railroad 7½ miles long, laid with oak ties and 65-lb. new steel rails, has been completed; this connects the various shafts, roast yards and smelter with one another and with the main line of the Atlanta, Knoxville & Northern Railway. The grades on this line are so arranged that the cost of handling the empties will just about equal the cost of handling the loads, thus giving the most efficient possible arrangement. The equipment consists of two locomotives 100,000 lbs. weight each; 22 special gondola cars, capacity 60,000 lbs. each, for handling green ore from the mines to the roast heaps; 25 Rodgers ballast cars of a capacity of 60,000 lbs. each, for handling roasted ore from the heaps to the smelter. The road is provided with a proper roundhouse and four sets of 100,000-lb. track scales, so that all material handled may be properly weighed.

Roast yards have been graded of sufficient capacity to easily hold 83,000 tons of ore. They have been laid out in benches, with double tracks between the benches so that the cost of loading and unloading may be reduced to a minimum. Rails and ties for the roast yard tracks have been purchased and are now being laid. Sheds for the roast heaps have been contracted for and enough have been erected so that roasting will commence during the month of February.

Near Isabella Station on the Atlanta, Knoxville & Northern Railroad, is located the new smelter of the company. Ground was broken for this last May, and by March 15th the construction will have been completed. Everything in the following list has been erected with the exception of the ore and coke bins. The smelter proper consists of a steel building in which are contained two water-jacket blast furnaces 56 in. by 180 in. at the tuyeres, and 18 ft. from tuyeres to charging floor; it also contains two converter stands with six shells 7 ft. in diameter, 10 ft. 6 in. long; a 40-ton electric crane with a span of 50 ft.; necessary equipment of clay mill, elevator, etc., is provided. The bins have a capacity of 2,500 tons of ore and flux, and 750 tons of coke. The material from these bins will be conveyed to the blast furnaces in two-ton charging cars moved in trains of four by electric locomotives. Slag from the furnaces will be carried away in slag cars of 45 cu. ft. capacity each, also drawn by electric locomotives.

The combined power and boiler house is built of brick, with steel roof. This contains four water-tube boilers of 250 H. P. each; two cross-compound blast-furnace blowing engines, each of them being capable of delivering 20,000 cu. ft. of free air per minute against 40-oz. pressure. Each engine consists of two steam cylinders 13 in. and 24 in. by 42 in., and two air cylinders, each one of which is 57 in. in diameter by 42 in. stroke. These engines have been especially designed for this work, have been built by the Nordberg Manufacturing Company, and are expected to give very economical results. The converter blowing engine is capable of delivering 10,000 cu. ft. of free air per minute against 15 lbs. pressure; steam cylinders are 15 in. and 30 in. by 42 in.; air cylinders are 40 in. by 42 in.

Power for operating the electrical equipment and the rotary pnmp is generated by a medium-speed single-cylinder engine. The electrical equipment consists of two 150-Kw. General Electric Company's machine used for power circuit, and a 25-Kw. General Electric Company's machine used for lighting. The plant is also provided with the necessary condenser heater, feed pumps, etc.

There have also been erected at the smelter plant a temporary machine shop, laboratory and warehouses, while 28 dwellings have been constructed on various parts of the property for the use of employees. The construction of the proper residences for the manager and his assistants, with all the new offices, has been deferred until such time as the property is producing.

Shipments from the iron-ore bank of the company, leased to the Virginia Iron, Coal and Coke Company, have begun and on the completion of the spur connecting the bank with the Tennessee Copper Company's railroad extensive shipments may be expected. It is expected that by July 1st the complete plant will be running and producing copper.

ELECTRO-SILVERED VERSUS PLAIN COPPER PLATES.*

By Edward Halse.

In this paper Mr. Halse describes some experiments made in the use of plain copper and silvered plates at a mill situated in the Remedios District, Antioquia, Colombia. The ore varies considerably in gold percentage from month to month, but it is constant in character, being invariably quartz charged with 1 to 5 per cent. of sulphides, chiefly iron pyrites, with some galena and blende. Altered granite country, more or less gold-bearing, frequently forms a considerable portion of the gangue. The ore contains free gold, but the greater part of the precious metal is locked up in the pyrites and galena. The latter carries silver, and is highly auriferous; the iron pyrites is less so; and the blende shows silver, but little or no gold. Arsenical pyrites sometimes occurs in the altered country within or adjoining the vein, and pyrrhotite is occasionally found where the vein is wide and of low grade. A careful record was kept of the amalgam taken from the boxes, plates, mercury traps, blankets and arrastra, in order to ascertain whether silvered plates yield a higher percentage of amalgam in proportion to the total gold extracted than plain copper plates. The results are given in the following notes:

The upper copper plates of each battery measured 6½ ft. long by 3 ft. 2½ in. wide, were ¼ in. thick, and had been running for 18 months; below them were new plates 1 ft. in length; total area, 96¼ sq. ft.

The electro-silvered plates (which received 1 oz. silver per sq. ft. of surface) were 6½ ft. long and ⅛ in. thick, and were followed by small copper plates as above; total area, 96½ sq. ft.

Along the foot of the plates were mercury traps, one for each battery, their length being equal to the width of the plates.

From the latter, the pulp flowed over blanket strakes, the total area of these being 96 sq. ft. The blanketings (concentrates) were washed from time to time in a narrow chest and inclined table.

The heads of the resulting concentrates (jaguas) were ground in an arrastra of the ordinary type, the concentrates themselves being shipped to England.

Mercury was dropped into the boxes from time to time; and unslaked lime (20 to 50 lbs. per day) to counteract the acidity of the water.

The plates were laid on the floor of the mill, so that it was impossible to alter their inclination, which was about 2½°. The mill was designed for the purpose of extracting the gold in a free state on blankets. Amalgamated copper plates were substituted for blankets after the mill had been running about six months.

Compared with modern mills, the percentage of gold caught in the boxes is very low. The screens (No. 12 steel-wire woven) were carefully washed when they were taken out to be replacd by new ones. The lower portion of the screen fits into an iron seating, locally called "reboso," which usually retains a considerable quantity of amalgam. The amalgam from the screens were credited to the boxes as well as that from the rebosos. The mercury traps were cleaned twice a week, and the blankets were washed every hour or so. The boxes themselves are cleaned once a month. The dies, however, which are wedged tightly together, are only removed once in six months.

When the ore is rich, or the gold is coarse, amalgam often collects at the back of the screens and screen-seatings, sometimes forming a solid mass, or "pegadura," upward of 1 ft. in length and 1 in. or so in width, the thickness being variable. Of the total bullion taken from the boxes, 75 to 90 per cent. is found inside or just in front of the iron screen-seatings, 3½ to 6 per cent. is cleaned from the screens (compuertas), and the remainder is obtained at the end of the month from the crushed or partially crushed ore left in the boxes. A summary of the results is given in the accompanying table:

Gold-saving appliances.	Plain copper plates. Per cent.	Upper plates silvered, lower plain copper. Per cent.	Silvered plates only. Per cent.
Boxes (cajones)	15.46	14.99	20.97
Plates (placas)	53.975	66.7625	69.17
Mercury traps (trampas)	5.74	2.645	1.755
Blankets (panos)	12.18	3.9675	1.805
Arrastra	12.645	11.635	6.80
	100.00	100.00	100.00
Caught above the blankets	75.175	84.3975	91.89

By comparing the first column with the last, we find that of the total gold extracted, the silvered plates yielded 15 per cent. more than the plain copper plates, while the increase in the percentage of gold caught above the blankets is 16.72.

It is well to consider the loss of gold by using plain copper plates which are frequently becoming tarnished. There is (1) the loss due to gold passing over the plates in that condition without becoming amalgamated. Frequent washing of the plates with a dilute solution of cyanide of potassium reduces this loss to a minimum; but that introduces (2), a mechanical loss, due to amalgam becoming loosened from the plates and running down into the mercury traps and on to the blankets, and (3), a chemical loss due to a portion of the gold becoming dissolved by the cyanide, not to mention the extra cost in labor. Losses from (1) and (2) are partly recovered in the amalgam traps and on the blanket tables. This is obvious in comparing the percentages caught in these appliances, shown by the first and last columns. It should be

*Abstract of paper read before the Institute of Mining and Metallurgy, in London, January, 1901.

mentioned here that much more mercury was used with the plain copper than with the silvered plates, which accounts for a good deal of the amalgam found in the mercury traps and on the blankets in the former case. But there is no doubt that the very fine particles of gold and amalgam go off into the tailings. The writer believes this loss amounts to at least 5 per cent. on the total amount of gold recovered, and may possibly reach 10 per cent. This loss is avoided by using silvered plates.

In the ore, before crushing, there is a certain amount of free gold; the rest of the gold presumably in a free condition, is included in the pyrites. A portion of this gold is freed by crushing in the stamp-battery, a further portion is freed by grinding in the arrastra. By these means about 60 per cent. of the total gold contents in the ore is extracted. The bulk of the remainder is retained in the concentrates, while a certain portion goes off into the tailings.

With the silvered plates, it was found that the fineness of the bullion was greater, the proportion of silver contained being lower.

The ore run over the plates was of good grade, the gold actually extracted varying from 19.26 to 46.47 dwt. of bullion per ton crushed. The plates have been found to work very well on low-grade ore as well as on tailings.

The writer is of the opinion that good amalgamation in the first instance is necessary for the successful working of silvered plates. The general opinion appears to be that merely rubbing the mercury in without any previous scouring or cleaning of the silvered surface is sufficient.

The first set of silvered plates used were first carefully washed with a solution of wood ashes; the mercury was then well rubbed in with a mixture of sal ammoniac and wood ashes, the operation taking about 3 hours. These plates, although they worked very well, were decidedly inferior in that respect to the second set, which were amalgamated as follows: The plates were scoured with a mixture of wood ashes and fine sand (which had passed a No. 80 screen). After cleaning the plates with water, mercury was then rubbed in with a mixture of sal ammoniac and wood ashes. The plates were then left with this mixture on them for 12 hours. At the end of that time, silver amalgam could be seen in patches all over the plates. This was rubbed in with the addition of a little more mercury, and the operation was concluded. These plates have worked splendidly. They have now lasted about 15 months, during which time some 7,000 tons of pulp have passed over them. The silver coating has not been eaten away, even in patches, and the plates are still in good working order. For some months they required no attention; after the daily clean-up, a little mercury was sprinkled over them and rubbed in. They were afterward washed three times a week with a solution of sal ammoniac; latterly they have been washed with this solution daily.

Certain oxidized and very low-grade tailings were found to discolor and harden the plates badly. It was believed that this was due to the presence of cyanide of potassium in the tailings, for tailings containing a considerable proportion of sulphides and no cyanide seldom tarnish the plates. The stain was removed by a dilute solution of sulphuric acid, and the plates were softened by sweating them with water at a temperature of about 200° F.

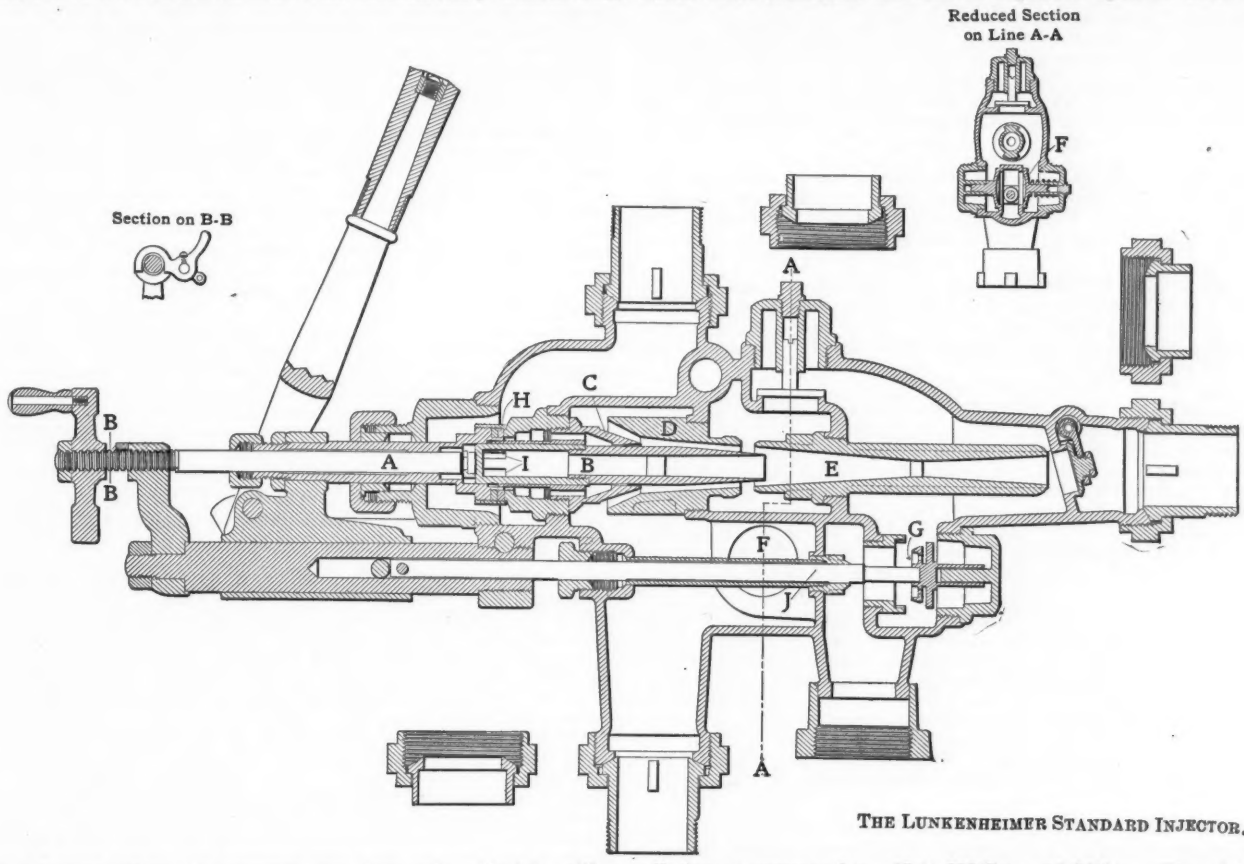
The writer has endeavored to show that, for a certain class of ore at any rate, electro-silvered plates are highly advantageous, and that such plates not only catch more gold in proportion than plain copper plates working under similar conditions, but that such gold is of an increased fineness. Although their first cost is very high in comparison with that of plain copper plates, they soon pay for themselves in economy of labor alone, as they require much less attention than the latter.

THE LUNKENHEIMER STANDARD INJECTOR.

Herewith is shown a sectional view of the new injector which the Lunkenheimer Company, of Cincinnati, O., has just placed upon the market. The construction of the machine is novel in a number of particulars and differs essentially from any of those now on the market.

Referring to the cut, it will be noted that by pulling the lever slightly the steam valve H is withdrawn from its seat and steam is admitted to the lifting steam jet C, through the annular space around the movable steam tube B. Steam flowing into the water-lifting tube B forms a vacuum in the water-supply pipe and the water is lifted and passes out through check valve A, also delivery tube E, past the overflow valve G to the atmosphere. Drawing the handle further back opens the ports I, I in the movable steam tube B, thus admitting steam to the interior of said tube, which forces the water through the combining tube E past line check to boiler, due to the closing of overflow valve G, occasioned by withdrawal of rod J. The principal feature in this machine is that the regulation of the water is accomplished by the movement of the movable steam tube B, the amount of which is controlled by the crank handle at the end of the machine. On this account it differs from all other forms of injectors as, in cutting down the discharge of water, the steam consumption is reduced in direct proportion.

The manufacturers claim for the injector that it will start promptly under most conditions and can be depended upon to work reliably at all steam pressures from 25 to 300 lbs., and higher. They further claim that it is distinctively a high-pressure injector designed particularly for that service. It is also self-adjusting—that is to say, it is not affected by variations of steam pressure, even within great limits, and when started, for instance at 70 lbs., it can be relied upon to work uninterruptedly to 300 lbs., and a sudden reduction in pressure would not disturb its action. There are a number of mechanical advantages also claimed for the injector, such as easiness of making repairs and other details.



THE LUNKENHEIMER STANDARD INJECTOR.

THE ETROFU SULPHUR DEPOSITS.

A recently-opened source of sulphur supply is described by Mr. W. H. Crawford, Jr., in "Cassier's Magazine" for February. It is the little island of Etrofu, which is situated about half way between the extreme northern point of Japan and the southern point of Kamchatka. The island is volcanic; there are on it three cones about 2,800 ft. in height, largely composed of sulphur, and the vapors which arise from the centers of the cones are continually adding to the deposits. The island is owned by a Japanese syndicate, which holds a grant from the Government of Japan. The sulphur deposits are about 2 miles from the coast, and the land surface declines gradually to Moyoro Bay, which is a good harbor, and is about 2,000 miles by water from Yokohama. The island is rocky and barren, with nothing to attract settlement.

The existence of these sulphur deposits had been known to the Japanese authorities for many years, but the large amount of capital necessary to bring the product to market, and the lack of knowledge on the engineering side of the question, had delayed operations to this date. The conditions were simply these: There were in the neighborhood of 1,500,000 tons of sulphur lying there in an almost pure state. It would be possible, by constructing a wire-rope transmission plant, to convey the sulphur to the water's edge and there lighter it out on board steamers of almost any draft. This work would necessarily

have to be done during the months from June to October, for the winter starts in early and soon has that northern end of the island ice-bound, and so it stays until late in the spring. Snow to the depth of 25 ft. covers the ground during the winter months. On the strength of the survey and the favorable report made on the return of the original party, a Japanese company was incorporated, and Mr. Everett W. Frazar, of New York, was appointed chief engineer of the undertaking. In May, 1899, he arrived on the scene with about 400 Japanese laborers, a ship-load of lumber and tools, four miles of wire rope and a good stock of general supplies. The following five months were occupied in constructing a rope transmission plant from the base of the sulphur cones to the sea-level, in putting up buildings and in getting the barren spot ready for the busy operations that were bound to follow during the open months thereafter. In addition to all this work the men found time to carry down about 500 tons of sulphur before the season closed and cold weather drove them away.

In May, 1900, Mr. Frazar returned and put the plant in full operation. The yellow crystals are dug out of the hill sides and carried in chutes to the upper terminus of the rope system, where they are loaded into iron buckets, suspended every 300 ft. along the line, and moved by gravity down to the lower end. There the sulphur is dumped automatically. The weight of the descending buckets carries back the empty ones, and the speed of the cable is regulated by friction brakes and an automatic governor.

Mr. Frazar's report of the operations from May 15th to October 10th, 1900, are that 10,000 tons of the sulphur were mined and transported to the sea-level, 6,000 of which have been shipped to Hakodate, Japan, where a refinery has been established. The remaining 4,000 tons will be refined on the ground at Moyoro Bay. Toward the latter part of the season, when everything was running in full swing, the rope-transmission plant was able to bring down about 3,000 tons per month. The season of 1901 will probably see this new industry well established.

GERMAN MINT COINAGE.—The German Mint in the year 1900 turned out coins of the total face value of 178,460,000 marks ($44,615,000). Of this coinage a total of 145,700,000 marks was in gold, 23,700,000 marks in silver, and 9,060,000 marks in nickel and copper coins.

MANGANESE ORE IMPORTS.—Imports of manganese ore into the United States in 1900 were 256,252 long tons; which compares with 188,349 tons in 1899, and 114,885 tons in 1898. Last year's imports were more than double those of 1898. Russia, Spain and Cuba are the chief sources of the ores imported.

SOUTH CAROLINA INTERSTATE AND WEST INDIA EXPOSITION.—This exposition will be held in Charleston, S. C., from December 1st, 1901, to June 1st, 1902. Contracts have been let for erecting four of the principal buildings and construction is now in active progress. There will be eleven buildings in all. The manufacturing industries of the South will form an especial part of this exposition, as the most improved machinery is now in demand. Mr. J. C. Hemphill, Charleston, S. C., is the manager of the Department of Promotion and Publicity, and will answer all inquiries as to the scope of the exposition.

COAL IN JAVA.—Australian advices state that attention is being directed to the fact that the coal measures at Bayah, in the Residency of Bantam, Island of Java, are very extensive. The Dutch Government sent an engineer to examine the Bayah seams, and he reported favorably on their quality and extent, but the Government did not follow this up by mining operations, owing to difficulties of transport, especially the absence of railway communication between the coal-fields and the nearest seaport. These difficulties have now been almost surmounted. A company has been formed to work the Bayah coal-fields.

RUSSIAN IMPORTATION AND PRODUCTION OF COAL.—United States Consul-General Holloway reports from St. Petersburg, January 4th, 1901: "The Russian Minister of Finance has announced that foreign coal imported for Government railroads will be admitted free of duty at all Russian ports until July 14th, 1901, by which time, it is expected, the domestic supply will equal the requirements. In consequence of strikes in coal mines near Warsaw and Lodz, coal intended for use in those cities is admitted free, and a material reduction has been made in the duty on coal for use at Odessa, Sebastopol and Nikolaeff."

GOLD IN ERYTHREA.—References have heretofore been made to the existence of gold in the Italian colony of Erythrea, in Abyssinia. A note published by the British Foreign Office states that Signor Fusinato, Under-Secretary of State for Foreign Affairs, stated in the Italian Chamber of Deputies recently that a concession to work the gold deposits in Erythrea had been granted to a company designated the Societa Eritrea pour le Miniere Aurifere, with a capital of 2,000,000 lire ($400,000), half to be Italian, and under the direction of a Council of Administration, to be presided over by an Italian subject, of which the majority must be Italians. Signor Fusinato added that the most important points conceded to the society are the right of subterranean search in three plots of land, each plot covering an area of 10,000 hectares, and the enjoyment of the concession for 30 years, with power to prolong the same to a maximum period of 99 years, the Italian Government to levy a royalty of 5 per cent. on the metal extracted from the mines. He could only say that so far the first experiments had been satisfactory, and that it had been proved that the colony was auriferous.

PLATINUM REDUCTION IN RUSSIA.—According to the "Viestnik Finanzoff," the production of platinum in the Oural District in Russia for the year 1900 was 332 poods (5,438 kgs.), a decrease of 31 poods as compared with 1899. These figures are based on the Government returns for 11 months, the figures for December being estimated. The value of the output is estimated at 4,648,000 roubles, or about $2,300,000. Commenting on the figures, the "Viestnik Finanzoff" states that the platinum industry has not advanced as rapidly as might have been expected from its position; it has practically no competitors, about 96 per cent. of the world's production coming from this district. The price of platinum in 1900 was not less than 14,000 roubles per pood, the cost of production being only from 4,000 to 7,000 roubles per pood. That this industry has not shown a further development in view of the diminished cost of production and increased price of platinum is attributed to the absence of any new discoveries of deposits of this metal in the Oural, where the few existing mines are all fully worked.

THE WORK OF THE FORESTRY DIVISION.—The work done by the Forestry Division of the United States Department of Agriculture, during the fiscal year 1900, is outlined as follows in the report of Forester Gifford Pinchot to the Department: "During the year applications were received for working plans for 48,078,449 acres, personal examinations on the ground were made of 2,103,670 acres, working plans were begun upon 1,325,000 acres, plans were completed for 179,000 acres, and 54,000 acres were put under management. In accordance with the request of the Secretary of the Interior, the preparation of a working plan for the Black Hills Forest Reserve was begun as the first step toward conservative lumbering on the national forest reserves. The working plans already in operation under the supervision of this Division were all continued, and the character of the work was in nearly all cases much improved.

"Planting plans were prepared for 59 land owners in 11 States. A unique and most promising study of the effect of forest cover on the flow of streams was begun in Southern California through the courtesy and co-operation of the Arrowhead Reservoir Company of San Bernardino. Studies of forest fires were made in 26 States, and the grazing investigation requested by the Interior Department for the national forest reserves was inaugurated. Working plans were also begun for the New York State Forest Preserve.

"The investigations of the growth and reproduction of commercial trees were continued and extended, and the studies in the history of forestry produced important results, now ready for publication. A report upon the Big Trees of California was prepared for the Senate Committee on Public Lands. . . . . A complete compilation of the laws relating to forestry in all the States was finished, and will shortly be submitted for printing. . . . . An exhibit, in some respects altogether novel in character, was prepared for the Paris Exposition, in illustration of the relation of forestry to agriculture; and an extensive examination of the forests of the Southern Appalachians was begun. During the year field parties have been at work in 26 States and Territories. The general efficiency of the personnel was increased to a marked degree during the year. These results were obtained by the expenditure of an appropriation of $48,520."

WIRELESS TELEPHONY.—The New York "Times" quotes a recent number of "Le Figaro," which contained an article by M. Emile Gautier, which, after stating that "the first step has been made toward the discovery of wireless telephony," proceeded to give an account of the experiments recently conducted by M. Maiche, who "is now able to transmit speech through the earth for a distance of 1,000 or 1,200 meters." The claim of M. Gautier has caused the appearance of several communications in the European press which show that the "first step" was actually taken some time ago, and that now as a result of the recent experiments made by Sir William Preece under the auspices of the British General Postoffice, it is possible to telephone without wires for a distance of 4 miles.

The first successful test was made by Sir William in February, 1894, across Loch Ness, in the Scottish Highlands, when the experimenter sought to compare telephonic with telegraphic signals, or, in other words, to ascertain whether articulate speech could be maintained under the same conditions as Morse wireless signaling. These trials showed that it was possible to exchange speech across Loch Ness at an average distance of 1.3 miles between parallel wires, when the length of the wires themselves was reduced to 4 miles on each side of the water. Eighteen months ago Sir William Preece, while experimenting according to the same scheme on the Menai Straits, discovered that the parallel wires could be shortened provided they were terminated by earth plates or the sea itself.

In December, 1899, it became desirable to establish communication between the islands or rocks known as the Skerries and the mainland of Anglesey, in North Wales, and it was determined to do this by wireless telephony. A wire 750 meters in length was erected along the Skerries, and on the mainland one of 3½ miles from a point opposite the Skerries to Cemlyn. Each line terminated in an earth plate immersed in the sea, and the average distance between the parallel portions of the two wires was 2.8 miles. Telephonic communication was readily maintained, and the service thus established has been in constant operation ever since. Last summer further experiments were made with the Preece system of wireless telephony between Rathlin Island, on the north coast of Ireland, and the mainland, where oral messages were readily sent over a distance of 4 miles.

Sir William Preece has demonstrated that the distance through which a telephonic message can be sent is practically infinite, provided the parallel wires are sufficiently extended. Thus the length of the wires in order to send a message any desirable distance proved the first obstacle against the system being employed on all occasions. Recently, however, he is said to have overcome this difficulty partly by the substitution of induction coils for straight wires, so that where before it was necessary to stretch wires in parallel lines for 4,500 ft., the same wires in coil now reach less than 50 ft., while communication is possible when the distance between them is increased to nearly five miles. A perfected form of the induction system is now being employed in an apparatus which Sir William Preece is making which will enable vessels at sea to communicate with each other even though widely separated.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like, will be reproduced whenever possible. Specimens should be of moderate size, and should be sent prepaid. We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

286.—New York University Mineralogical Collection.—Many additions have recently been made to the Museum of Economic Geology. Mr. Andrew Carnegie has donated a complete series of iron ores representing the Oliver Mining Company's mines in Michigan and Minnesota. The museum already had a fine series of micaceous hematites from Michigan, and this contribution makes the collection of Michigan and Minnesota ores nearly complete. Mr. John D. Archbold has given the museum a series of crude petroleum samples from Japan, Borneo, Sumatra, Java, India, the Red Sea, Zante, Argentina, Galicia and Elsass, illustrating the types found in those countries. This is in addition to a previous gift of samples of petroleum from 60 American localities. The museum had already more than 300 samples from the Stevenson collection.

287.—Allanite.—H. de P.—The black mineral occurring in quartz is not hematite, as you suppose. Hematite is not so hard and has a red streak. The mineral is probably allanite, a complex iron-aluminum silicate. It occurs at many places in North Carolina.

288.—New Mineral Occcurrences in Canada.—In the "American Journal of Science," G. Chr. Hoffman, of the Canadian Geological Survey, describes some new occurrences of minerals.

Newberyite and struvite, or a material corresponding to a mixture of these two minerals, was found in a fossil mammoth tusk that was dug out of frozen muck on Quartz Creek, 20 miles south of Dawson City. The material occurred in small plates, which, at first colorless and transparent, became white and opaque on exposure to air. Analysis gave P_2O_5 38.5; MgO 21.9; NH_3 1.9; water 37.2; CO_2 5 per cent.

Lepidolite has been found as a constituent of a wide, coarse-grained dike of granite in Wakefield Township, Quebec. The minerals composing this vein consist of white and light smoky-brown to brownish-black quartz, pinkish and light to dark verdigris-green microcline, a grayish albite having a fine bluish opalescence, and the mica in question, together with some aggregations of light purplish crystals of fluorite, and fine crystals of black and green tourmaline. The mica occurs in broad foliations having a rough, distorted hexagonal contour, and which in some instances have been found to measure 14 by 28 in. or more across. It has a pearly luster. In thin laminae it is transparent and colorless; in combinations of several laminae it exhibits, on a white surface, a fine, light purplish color; and in layers of about half an inch in thickness it has, by reflected light, a rich purplish-brown color.

Danalite has been identified by Mr. R. A. A. Johnston as occurring scattered through the feldspar of a vein-stone composed of orthoclase, spodumene and quartz, which was found by Mr. A. P. Low, cutting syenite, on Walrus Island, east coast of James Bay, Northeast Territory. The crystals are mostly minute, seldom exceeding a millimeter in diameter; one, however, was found—and that the only one of any appreciable dimensions in some 20 lbs. of the rock, which measures 15 millimeters across. It is a contact twin of two tetrahedrons, and on some of the faces is triangularly marked by successions of crystal growth. On some of the more minute crystals the rhombic dodecahedral plane—which is striated in the direction of the longer diagonal, is largely developed, sometimes obscuring the tetrahedral plane. It has a faint yellowish orange-gray color; is translucent; has a resinous luster; affords a yellowish-white streak; is brittle, and breaks with a subconchoidal fracture. The hardness is 6. Before the blowpipe, it fuses at about 5 to a black enamel. With soda on charcoal, it gives a slight coating of zinc oxide. It is perfectly decomposed by hydrochloric acid, with evolution of hydrogen sulphide and separation of gelatinous silica.

Spodumene has been identified by Mr. R. A. A. Johnston as a prominent constituent of a micaless orthoclastic, granite vein-stone found, by Mr. A. P. Low, in 1899 cutting syenite, on Walrus Island, east coast of James Bay, Northeast Territory. The mineral occurs in more or less well-individualized grayish-green subtranslucent prisms, some of which measure more than 10 centimeters in length and from 8 to 10 millimeters in diameter. It has one well-developed prismatic cleavage, the luster of which is pearly, while that of the cross-fracture, which is an uneven one, is vitreous. The hardness is nearly 7. Before the blowpipe, it swell up and fuses at about 4 to a white glass, imparting at the same time a bright purplish red color to the flame. The finely powdered mineral is not acted on by hydrochloric acid.

A mineral which, as the result of an examination by Mr. F. G. Wait, proved to be schorlomite, has been met with, in masses of considerable size, as an accessory constituent of the nepheline-syenite rocks of Ice River, a tributary of the Beaverfoot which flows into the Kicking Horse River, in British Columbia. It is massive, without cleavage; the color is velvet-black, here and there tarnished blue, and occasionally with pavonine tints; that of the streak, hair-brown; the luster is vitreous; it is brittle; the fracture is irregular, occasionally subconchoidal; it is opaque; fuses quietly at 3 to a black enamel; has a hardness of 6.5.

WATER-POWERS IN SWEDEN.—A water-power commission has been appointed by the Swedish Government to investigate all the water-powers in Sweden which may be located near possible lines of railway that would not be remunerative if worked by steam. This commission has already recommended the passage of a law making these possible sources of power national property, to be utilized for generating electricity for industrial purposes. Meanwhile Dr. G. de Laval, the well-known turbine inventor, is trying to form a trust of all the Swedish water-powers, to be worked for the mutual benefit of the owners.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Zinc-lead-silver Ores.—Will you kindly advise me through the columns of your valuable "Journal" whether there has as yet developed a market for silver-zinc ores, payment being made for both metals? The ore which I have in mind runs about 40 per cent. zinc, 10 per cent. lead, 2 per cent. iron, 1½ per cent. copper and 60 oz. silver.—T. D.

Answer.—There is the same market for such ores as you mention that there always has been. The smelters of lead and silver ores object to ores carrying so much zinc, and make a large reduction in prices paid for ores having over a certain proportion of that metal. Several processes have been devised for treating such ores, and some of them may be successful in time. See the "Engineering and Mining Journal," September 29th, 1900; also "The Mineral Industry," Volume VIII.

Tinplate Scrap.—Can you tell me if there is any concern in this country which treats tin scrap? I believe there are several in Germany which do so. What is the result of the process?—Black Plate.

Answer.—The Vulcan Metal Refining Company, which has a plant at Sewaren, N. J., does the kind of work you refer to. There was formerly a small plant in Newark, N. J., but we believe it is not in operation at present. The tin scrap from the can factories, etc., is largely gathered up and shipped to Holland and Germany. As to the uses of tin-plate scrap we cannot do better than to quote from an article recently published in the Cleveland "Iron Trade Review," as follows: "From experience it has been found that 1 ton of tin clippings will produce about 50 or 60 lbs. of tin, which is secured by treating the clippings either by an electrical or chemical process. A tin oxide is secured which can either be resmelted or can be sold to enameling plants in oxide form. The detinned steel, which is now nothing less than clippings of black sheets, is marketable at about the same price as the tin clippings command, and there is an increasing demand for these steel clippings. Several machines have been invented within the past 18 months which compress these clippings by hydraulic pressure into blocks, usually 1 cu. ft. in size. The weight of one of these blocks is approximately one-third the weight of a piece of steel of the same size. This material is being used largely in open-hearth furnaces, where it has been found that little of it is lost.

"Experiments have been made during the past few years with the purpose in view of melting the tin from the black plate. At Pittsburg a rotary furnace was experimented with for some time, but it proved a failure owing to the fact that the tin would not run from the steel, although it could be readily wiped off. Detinned clippings are required to be absolutely free from all traces of tin, owing to the action it has on the steel, rendering it brittle. In Germany and Holland the detinning processes are far in advance of those in this country, and the detinned steel is considered excellent scrap material for open-hearth practice.

"The discarded tin can now find its way into the cupolas of a number of foundries throughout the country, the metal being used for the casting of sash weights and other castings where weight and nothing else is desired. That this metal has weight is about all that can be said of it, and it has been stated that it is not sought after very eagerly by the trade for sash weights owing to the extreme brittleness of the resulting material."

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending January 29th, 1901.

666,641. PUMPING APPARATUS. Amos Boucher, Riverton, Mich. The combination with a pump, an air-tight tank communicating therewith, and a motor connected with the pump, causing the latter to force water into the tank; of an outlet pipe communicating at one end with the tank and provided at its other end with a removable cap or plug, means connected with said pipe for controlling the operation of the pump, a service pipe also communicating with the first-mentioned pipe, and a valve between said first-mentioned pipe and the service pipe.

666,657. APPARATUS FOR OBTAINING AMMONIA. Heinrich Fischer, Pecek, Austria-Hungary. In combination, a retort, a screw therein, gearing connected with the screw and shaft, belt pulleys for operating the gearing in either direction, a cylinder and piston, a supply pipe leading to the piston, a cock controlling the supply to either end of the cylinder, and a projection or part of the gearing for operating the cock.

666,659. COMPRESSED-AIR WATER ELEVATOR. Horace L. Frost, Bristol, Tenn., assignor to the National Pneumatic Pump and Manufacturing Company, of Tennessee. The combination with a rocker-plate provided with inlet and outlet passages, of a divided vessel supported by the rocker-plate, and valve mechanism directly supported by the plate and operated by the oscillations of said plate to control the inlet and outlet passages.

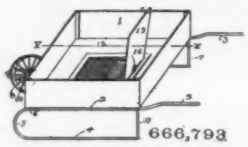
666,670. PROCESS OF MAKING ALLOY. Charles T. Hennig, New York, N. Y., assignor to James R. Hatmaker, London, England. The process of combining from 50 to 65 parts of copper, from 33 to 50 parts of zinc, from 1 to 15 parts of iron, and from one-sixth part to 8 parts of manganese into a useful alloy, which consists in melting those metals together and in stirring into the molten mass carbonate of an alkali metal.

666,771. ROD COUPLING. Theodore C. Munz and John Giesel, Toledo, Ohio. The combination of a head formed on an end of one coupling-rod section by upsetting the end of the rod, an elongated cylindrical head, of equal diameter with the cylindrical portion of the first

666,771.

head upset upon an end of another rod-section, the heads each having equal longitudinal bisecting incuts in their outer ends, and a sleeve, movably mounted on the first rod, whereby, when the heads are in overlapped abutment, the sleeve may be run down in threaded engagement with the elongated head, until the heads of the rods are drawn together in rigid end-to-end abutment and locked against separate turning within the sleeve by their overlapping projection.

666,793. COMBINED MINER'S COOKING STOVE, WHEELBARROW AND SLED. Charles C. Benson, San Diego, Cal. The combination of a hopper having a central aperture, a flange, a stove pot set into the



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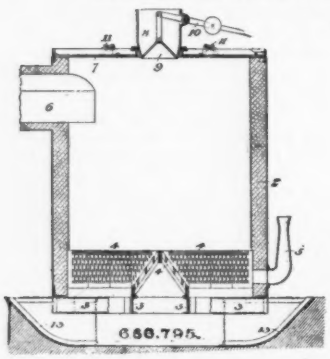
hopper, a grating at the top of the stove pot and a hinged plate adapted to fold down upon said grating, suitable runners secured to the hopper, and a wheel having connection with the hopper.

666,795. GAS PRODUCER. William H. Bradley, Bellevue, Pa., assignor to the Duff Patents Company, Pittsburg, Pa. A gas producer having a central perforated grate portion and at least three inclined grates extending radially therefrom, leaving free spaces between them for the descent of ashes.

666,796. ORE-WASHING AND CONCENTRATING MACHINE. Charles Brash, Victoria, Canada. A suspended receptacle for receiving the water and the ore, provided with an outlet which extends below



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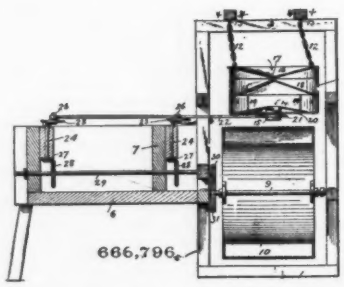

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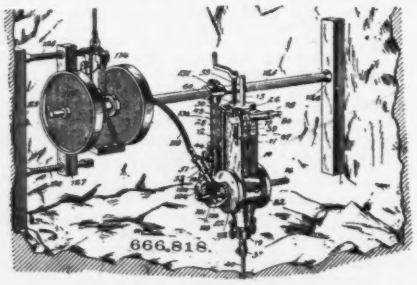
the bottom of the receptacle, combined with suitable eccentrics, a rod operated thereby, a ring upon the end of the rod and which encircles the outlet extending below the bottom of the receptacle, suitable curved springs placed inside of the ring, and means for operating the eccentric.

666,799. FORCE-JET DEVICE FOR CLEANING QUARRY HOLES, ETC. Samuel W. Buckwalter and Heber F. Buckwalter, Reading, Pa. A force-jet nozzle for cleaning quarry holes, etc., having a shank or body adapted to be connected to a pressure-supply pipe, and a chambered tip below said connection having a circular series of discharge outlets opening upwardly around said shank or body, said tip having exterior longitudinal grooves between said outlets.

666,803. PUMPING MECHANISM. James Gannon, Bristol, Va., assignor to the National Pneumatic Pump and Manufacturing Company, of Tennessee. The combination with a supporting frame comprising inlet and outlet pipes having openings therein, of a vessel comprising separate chambers, hollow trunnions for said vessel by which it is rockingly mounted in communication with the openings of said pipes, a connection for alternately opening and closing the air-outlet openings in the barrel with respect to the openings that communicate with the chamber.

666,806 and 666,807. FIBROUS COMPOSITION OF MATTER. John A. Just, Syracuse, N. Y., assignor to the National Package Company, Glens Falls, N. Y. A composition of matter consisting of finely-divided fibrous material, a mineral filler, resinous matter, a drying oil and a drier.

666,818. DRILL. John H. Redfield, Bossburg, Wash., assignor of one-half to Charles Grutt, Emil Grutt and Fred Grutt, same place. The combination with a carriage and a drill frame slidably mounted therein of a reciprocatory drill rod mounted in the frame and adapted for attachment of a drill-bit thereto, a ratchet upon the rod, a cam



666,818.

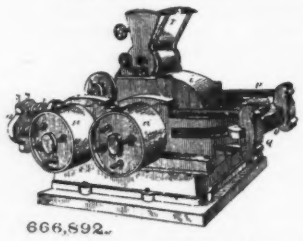
shaft journaled in the frame, a cam upon the cam shaft and adapted for engagement with the face of the ratchet to repress the drill-rod a knife-edge carried by the cam for engagement with the teeth of the ratchet to rotate it and the drill-rod, means for returning the drill-rod when released by the cam, a feed screw engaged with the fame for feeding it and provided with a ratchet, and a lever having a pawl at one end in operative relation to the ratchet on the feed screw and having a cam face at the other end for engagement by the ratchet on the drill-rod, to operate the lever and its pawl, said lever being adjustable to permit of the ratchet traversing the cam to a greater or lesser degree to vary the operative movement of the pawl and the feed of the frame.

666,851. METHOD OF MAKING ARTICLES OF VARYING CROSS-SECTION. John Lanz, Pittsburg, Pa. The improvement consists in subjecting a heated metal blank, billet or bloom to a rolling pressure applied one or more times sidewise to said billet or bloom in such a manner as to effect simultaneously varying degrees of side flow and prevent end flow of the metal, and thereby produce depressions or tapers in the sides of the blank, and corresponding protuberances, swells or tapers in the edge or edges thereof and then subjecting said blank to a rolling pressure applied longitudinally and progressively from end to end, whereby the blank is elongated without materially changing its width or the contour of its edges.

666,862. APPARATUS FOR BURNING PULVERIZED FUEL. George S. Emerick, Philadelphia, Pa. The combination of a mill for the reduction of fuel, a separator, a worm, a speed-changing mechanism adapted to control said worm, a discharge pipe, a fan for ejecting fuel from said discharge pipe, and a ratchet, pawl and steam cylinder for automatically controlling the speed-changing mechanism.

666,865. CONVEYOR. Ernest Helfensteller, Jr., St. Louis, Mo. The combination with a plurality of driven shafts rotating in the same direction and at uniform speed, of a plurality of oppositely-placed cams arranged on each of said shafts, saddle-blocks riding upon said cams, and conveyor bars secured to said saddle-blocks.

666,892. CRUSHING ROLL. Philip Argall, Denver, Colo. A main frame, a fixed roll revolubly mounted thereon, a U-shaped frame mounted on said main frame to slide horizontally toward and from said fixed roll, a movable roll revolubly mounted in said sliding frame, spring



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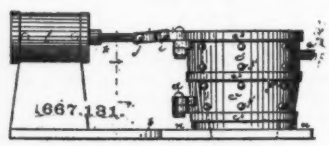

667,131.

compressors secured upon the main frame outside the fixed roll a system of equalizing levers fulcrumed upon the sliding frame at a seat on the center line of the rolls, and tension-rods, extending from the compressors to the equalizing-lever system at the outer extremities thereof, whereby the rolls are drawn together through the action of the compressors.

666,963. METHOD OF MANUFACTURING TILES. Bernard Jacquart, South River, N. J., and John F. Booraem, New York, N. Y. The method consists in forming a brick-blank, then nearly severing the tile portion in one direction and wholly severing it in the opposite direction from the refuse portion of the blank, while in its wet state, then drying and burning the blank and finally separating the tile from the refuse portion of the blank.

666,976. HOISTING MACHINE. Edward C. Reiter, Rockville, Conn. A fixed shaft, a hoisting drum mounted to rotate on said shaft, a frame mounted to rotate on the shaft, a crown wheel carried by the frame, a gear wheel mounted to deflect and to engage with two rows of teeth on the crown wheel, and means operated by a movement of the drum for causing the deflection of said wheel.

666,980. METHOD OF MAKING SILICO-FLUORIDES. William C. Sellar, London, England. In the process of producing silico-fluoride from calcium fluoride or fluorspar, the step which consists in fusing the calcium fluoride together with calcium chloride, so as to render the fluorspar more easily attackable by hydrochloric acid.

667,045. WELDING STRIP. Samuel Vapstone, Providence, R. I. A welding strip provided with a projecting rib, and welding surfaces at opposite sides of the rib, the surfaces being provided with integral raised points or knobs to prevent contact of the surfaces while in the furnace.

667,050. MACHINE FOR MAKING ARTIFICIAL FUEL. Ellsworth B. A. Zwoyer, Reading, Pa. Molding and compression rolls provided on their faces with molding-pockets of such geometrical outline that the metal separating each pocket from the adjacent pockets shall present an approximately sharp edge, in combination with feed rolls provided with similar pockets, and so placed above the molding and compression rolls as to discharge between them.

667,099. METHOD OF TREATING AND UTILIZING CHLORINE GAS. Edward C. Paramore, Philadelphia, Pa. The method consists in first expelling the air from a chlorine generator, second, generating gas in said generator, third, drawing said gas into an electric chamber, fourth, electrifying said gas in said chamber, and fifth, forcing the treated gas back and forth through the material to be treated.

667,100. APPARATUS FOR TREATING CHLORINE GAS. Edward C. Paramore, Philadelphia, Pa. An electric chamber consisting of a gasway tube, housings extending at right angles to said tube, dielectric bulbs containing electrodes, said bulbs extending through the housings and into the gasway tube, in combination with a chlorine generator and a receiver, both connected to said gasway tube, a pump connected to the receiver, an induction coil and electrical connections between said induction coil and electrodes.

667,131. PROTECTOR AND SHAKER FOR RECHARGING CRUCIBLES. John Illingworth, Newark, N. J. A crucible-shaker comprising an engine cylinder, a piston movable reciprocally in said cylinder, a support for the crucible on which the same may rock back and forth, jaws for grasping the crucible, and a link connecting the piston and jaws.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending January 5th, 1901.

22,549 of 1899. CEMENT PLANT. J. C. Gostling and J. H. Fraser, London. An improved plant for burning and drying cement.

25,156 of 1899. APPARATUS FOR SQUIRTING METALS. F. P. Preston, London. Method of strengthening the container of apparatus used in squirting metals.

25,202 of 1899. ROCK DRILL. H. J. Kinsman, Chicago, U. S. A. Improved devices for rotating the cylinders of percussive rock drills.

25,734 of 1899. ARTIFICIAL STONE. P. Timoteeff, St. Petersburg, Russia. An artificial stone made by mixing sand, clay and lime and then fusing.

2,151 of 1900. ROASTING SULPHIDE ORES. H. K. Pickard, London. Process for roasting mixed zinc-lead sulphides, then smelting with carbon, by which the zinc is volatilized and the lead left in the bottom.

13,177 of 1900. TUBE FOR BORE-HOLES. C. J. Thomssen and P. H. Thomssen, Rendsburg, Germany. An improved form of tube for lining deep bore holes.

PERSONAL.

Mr. Carroll D. Wright has been reappointed United States Commissioner of Labor by President McKinley.

Mr. D. W. Brunton, mining engineer of Denver, has returned there, after a month's professional business at Butte, Mont.

Mr. A. E. Borie has been appointed general sales agent of the Bethlehem Steel Company, with headquarters at South Bethlehem, Pa.

Mr. Kirby Thomas, of West Superior, Wis., is at Globe, Ariz., making an examination of some copper properties for the American Mines Development Company of Minneapolis, Minn.

Mr. Hudson H. Nicholson, consulting engineer for the American Mining Investment Company, of Denver, Colo., is giving a course of lectures at the University of Nebraska, at Lincoln, Neb.

Mr. Geo. K. Williams, of St. Francois County, Mo., has been appointed State inspector of lead, zinc and iron mines. The new inspector is a diamond drill operator from the lead mines of southeast Missouri.

Mr. J. F. Brophy, engineer for Carver Brothers Company and the Plymouth Coal and Mining Company, has resigned to accept a similar position with the Mill Creek Coal and Coke Company of the Flat Top region. His address is Coopers, W. Va.

Mr. T. Suzuki, superintendent of the collieries of the Imperial Steel Works, at Yawatamura, Japan, and Mr. S. Ichikwa, chief electrician of the Hokkaido Coal Mining and Railroad Company, with headquarters in Tokio, Japan, while in Pittsburg last week visited the Westinghouse Works and the Homestead Steel Works.

OBITUARY.

Josiah M. Bacon, who was a leading coal miner and merchant of Philadelphia, died on February 10th in that city of pneumonia, aged 58 years. He was a director in the Cambria Iron Company, the Southwark Foundry and Machine Company and other industrial enterprises.

Thomas M. Collins, who for 23 years was superintendent of the Cambria Iron Company's blast furnaces at Johnstown, Pa., died on January 31st, aged 82 years. He was born in Berks County, Pa., and went to Johnstown in 1857. Mr. Collins retired from active business about 20 years ago.

SOCIETIES AND TECHNICAL SCHOOLS.

McGill University.—Messrs. Fraser & Chalmers, mining machinery makers of London and Chicago, have offered a scholarship to the mining department. The terms are as follows: To the student recommended each year by the faculty the company will give a favorable opportunity to work in its American establishment for about 3 months immediately following graduation, and will pay him a sum amply sufficient to cover all his expenses. There is, of course, besides a chance of a permanent position with the firm, who are among the largest manufacturers of mining machinery in the world. The work will consist in the construction of mining machinery and the setting up of the plant at the mine, and will give the graduate an excellent chance of getting acquainted with these branches of his profession.

Civil Engineers' Society of St. Paul.—At the meeting held February 4th, the deferred election of officers for ensuing year resulted in the election of A. O. Powell, president; A. W. Munster, vice-president; G. S. Edmondstone, secretary; A. H. Hogeland, treasurer; C. A. Winslow, librarian; representative on board of managers for Association of Engineering Societies, Geo. L. Wilson, St. Paul. Percy E. Barber and Otto Luserke were elected members. The treasurer's report showed the society to be free from debt, with a comfortable figure upon credit side of ledger. The time of meeting was changed from first to second Monday in each month.

Mr. H. J. Gillie described the terminal station within the limits of the city of St. Paul of the electric current generated at the power house of the St. Croix River Power Company at its dam upon Apple River. Afterward members personally inspected the terminal station.

American Chemical Society—New York Section.—At the meeting on February 8th Dr. T. S. Stearns read a paper on "The Chemistry of Materials Used in Perfumery and Kindred Arts," in which he described the methods of preparation and chemical relations of the essential odors of flowers and their synthetic imitations.

Dr. C. W. Volney gave the results of his investigation of the "Decomposition of the Chlorids of the Alkali Metals by Sulphuric Acid," with exhibition of crystals, which he considers poly-sulphates. Some of the chemists present thought these salts were probably acid sulphates, with sulphuric acid of crystallization.

A paper by Dr. H. T. Vulte and Harriet W. Gibson on the "Metallic Soaps from Linseed Oil; An Investigation of their Solubilities in Certain of the Hydrocarbons," was read by Dr. Vulte.

H. C. Sherman and J. F. Snell were represented by H. C. Sherman, who read a paper in two sections: (a) "On the Heat of Combustion as a Factor in the Analytical Examination of Oils"; (b) "The Heats of Combustion of Some Commercial Oils."

Dr. Dudley, past president, and Prof. F. W. Clarke, of Washington, president of the society, were present, and occupied seats on the platform.

Rossland School of Mines.—This institution is giving a 3 months' course at Rossland, J. C. McGregor being principal. The course covers:

Chemistry.—A short course of lectures preparatory to the course in mineralogy and blowpiping.

Mineralogy and Blowpiping.—Lectures on the elements of mineralogy illustrated by hand specimens and a course of blowpiping.

Geology.—Lectures on the elements of geology as illustrated from the geology of British Columbia; and the more of occurrence of ore deposits, vein formation, fissures, faults, etc., and field methods.

Prospecting and Winning of Ores.—The application of the principles of mineralogy, geology and mechanics to the discovery and winning of valuable minerals and the methods and appliances in use to open up the deposits, and the various methods of ore treatment.

Mechanics.—The elementary principles of mechanics and their application to mining, dealing with strength of iron, steel and timber; and machinery.

Drawing.—The elements of drawing, such as will enable the student to make serviceable sketches in the field; the free-hand sketching of machinery and the principles of reading maps and plans and surveys.

There will be a small reference library.

University of Kansas.—This university at Lawrence has organized a school of mining engineering. At the head of the department is Erasmus Haworth, professor of physical geology, mineralology and mining, who has been connected with the university since 1892 and as an authority on the mineralogy and geology of Kansas. Metallurgy is conducted as a branch of the chemical department and is at present under the control of Prof. H. P. Cady, who studied at the University of Kansas and at Cornell. Mining is taught by Dr. W. R. Crane, who has had wide experience in examining mining properties in Kansas and Missouri and is the author of the section on mining methods in the special report on coal of Kansas Geological Survey Reports. He is a graduate of the University of Kansas and also of Columbia University, New York.

Lawrence is within a few hours' ride of the smelters and the lead and zinc mines of the Southwest, the coal-fields of the Mississippi Valley, the oil and gas-fields of Kansas and the Indian territory. Six weeks of the summer vacation between the junior and senior year is to be devoted to field work. The more important mining localities of America will be visited and a careful study made of the geology and mineralogy of the region, the mines and methods of mining, and of the mining plants, plants for ore dressing and smelting. The course of study will cover four years.

The ore dressing laboratory of the department is in the basement of the new chemistry building, which will be in shape for work at the beginning of the spring term. The apparatus covers devices from those for the treatment of slime to the crushing of heavy ore and gangue, and consists of a Gates crusher, a power jig, a large pan for gold washing, a keave for washing small quantities of slime, a hydraulic separator for separating one or more minerals in fine state, a pulverizer, a slime washing table, a screening device and two slime classifiers. These all are provided with an automatic feeding device. The school has quarters in the basement of Fraser Hall, including lecture rooms, library, mineralogical laboratory, assay laboratory and a museum which contains models and samples of mining tools and engines, donated by various manufacturers. The department is constantly in receipt of specimens of ore and rock from different parts of the State.

INDUSTRIAL NOTES.

The Semet-Solvay Company, of Syracuse, N. Y., is to erect 120 coke ovens at the Benwood plant of the Wheeling Steel and Iron Company.

Wm. B. Scaife & Sons, of Pittsburg, Pa., have received a contract from the National Steel Company for constructing and erecting a steel frame trestle approach at the Youngstown works.

The Pressed Steel Car Company, of Pittsburg, Pa., has shipped 107 pressed steel hopper gondola cars of 60,000 lbs. capacity to South Africa. The cars are the last of a shipment of 167, the order for which was secured by the Pressed Steel Car Company from the Rand Mines Company some time ago.

The Gillette-Herzog Branch of the American Bridge Company will furnish the steel work for the large steel building to be shipped to the Montezuma Copper Company, at Macozani, Mexico. The total sales for January of all branches of the American Bridge Company amounted to over 60,000 tons.

Recently, in one night turn, the 40-in. mill in the new basic open-hearth plant of the Duquesne Steel Works of the Carnegie Steel Company, at Duquesne, Pa., broke the record in rolling open-hearth steel by rolling 524 tons of open-hearth billets in 12 hours. This mill made during January over 22,000 tons of billets.

The Gates Iron Works, of Chicago, has just finished the largest ore crusher ever made. It weighs 80 tons and is 20 ft. high from the floor to the hopper. The crusher will be driven by a 150-H. P. engine, and will crush 8 tons of ore per minute. The machine will be used by the Biwabik Mining Company, of Biwabik, Minn.

The Hazard Manufacturing Company, of Wilkes-Barre, Pa., has completed a new 5-story addition, 75 by 145 ft., to its works. The basement will be used for the storage of steel rods, the second or intermediate, cotton; the next for finished product, and the fifth will be an operating department. The company is very busy in all departments.

James Leffel & Company, of Springfield, O., manufacturers of turbine water wheels, are building an addition, 80 by 225 ft., to their plant. The new building will be constructed of steel and equipped with electric traveling cranes and other modern machinery. The firm now employs 170 men, and will increase its working force as soon as the addition is completed.

There is nearing completion at the Ottumwa, Ia., Iron Works a large hand friction hoist, with double cylinder, single drum and helical toothgearing. The cylinders are 16 in. by 20 in. The shipping weight is 38,000 lbs. This hoist is the last of 3 constructed especially for the Montana Ore Purchasing Company of Butte, Mont. The former 2 are now in use at Butte.

During January the Monongahela furnaces of the National Rolling Mill and the Boston Iron and Steel Works of the National Tube Company at McKeesport, Pa., broke all previous records. The furnaces produced 23,670 tons 1,862 lbs., and the blooming and converting mills produced 26,041 tons 1,100 lbs. This exceeds all previous records by 1,100 tons.

The National Tube Company, of Pittsburg, Pa., has recently shipped pipe and trolley poles abroad, through Eastern ports aggregating nearly 2,000 tons. The United Kingdom was the most important customer, close on 500 tons having been forwarded to it. The next largest buyer was the British East Indies. Continental Europe was a customer to the extent of 141 tons. Other pipe shipments were made up thus: South Africa, 111 tons; Tampico, 104 tons; Sydney, 42 tons; Inagua, 40 tons; Progreso, 27 tons; while a smaller shipment was made to Buenos Ayres.

The B. F. Sturtevant Company, of Boston, Mass., was recently in receipt of a letter from the Enterprise Foundry Company, of Sackville, N. B., which contained the following: "We have had one of your No. 6 noiseless blowers in use for 28 years with entire satisfaction, but the blast wheel is now apparently worn out and the left side piece is broken. If we had this left side piece and the blast wheel as shown in your circular it would make the blower all right. Can you furnish this for the No. 6 blower which you were selling in 1872? This blower is driven by two belts, but we fear we have been driving it at too high a speed."

The N. & G. Taylor Company has just erected at its tinplate works in Philadelphia, a large and commodious machine shop with the most modern machinery, turning lathes, drills, shapers, forges, emery wheels, etc. It has also added 2 tinning stacks, making now 25 in all, and the tin house is acknowledged to be one of the finest in the world. The company is running to its full capacity and reports an excellent business in all departments. It has also given out the contract for an additional building for the assorting and warehouse department. The recent large additions to the rolling mills at Cumberland, Md., necessitate the above improvements.

Thomas J. Hurley, president of the Natalie Mining Company, Gladstone, Colo., has closed a contract with Fraser & Chalmers Company, of Chicago, for a large duplex compound compressor plant. It is a Siedler compressor of 12-drill capacity and has an 18-in. steam cylinder, 19-in. air cylinder and 42-in. stroke driven by a Corliss engine with cylinder 18 by 42. This will have a normal capacity of 1,100 cu. ft. of free

air per minute carrying 90 lbs. pressure under normal conditions and at 80 revolutions per minute. There will also be erected a battery of three 100-H. P. boilers. The drills will be of the 3½-in. slugger type. There will also be installed another engine and an electric light plant, all to be delivered at Gladstone, May 15th.

The Buff & Buff Manufacturing Company, of Boston, Mass., states that it has just moved into extensive additions to its Jamaica Plain shops, which are fitted up with some of the most accurate special machines and machine tools made. Chief among these is a longitudinal machine for graduating on glass ruling 50,000 to the inch. The firm has established a new department for large astronomical instruments for special observatory uses, but still specializes the "Buff" standard transit for railroad and city triangulation, which is made in 8 sizes, ranging from the transit, weighing 5 lbs. complete, to the standard triangulation transit of 17 lbs. The company has just issued a complete 1901 catalogue descriptive of its plant and product which it will mail to inquirers.

Milliken Brothers, of New York City, recently secured a contract for 8 bridges for the Tehuantepec National Railway of Mexico. The contract calls for 4 spans of 54 ft. 6 in. each; 1 span of 121 ft. 6 in., and 1 plate girder span, 53 ft. 9 in. in length, constituting the Sarabia River bridge. There will also be 2 sets of caissons. Another bridge, to be called the Tolosa Bridge, will consist of 3 truss spans 121 ft. in length. Three 30-meter span truss bridges, 102 ft. 6 in. long, and the same number of 25-meter span bridges, 86 ft. long, have also been ordered. The contract was awarded in the face of keen English and Belgian bridge manufacturers competition. The American prices, it is reported, were nearly 15% below those of the best European quotations. The material for the bridge will be turned out by the Carnegie Steel Company, and the Central Iron and Steel Company, of Harrisburg, will also execute part of the bridge work.

TRADE CATALOGUES.

The Bretherton Hot Blast Smelting Company, of Denver, Colo., is sending out circulars calling attention to the Bretherton hot blast smelting apparatus for utilizing the heat of the slag in pyritic smelting. The merits of this device have been discussed in the columns of the "Engineering and Mining Journal."

"An old friend in a new dress" is the designation the Josephite Dixon Crucible Company, of Jersey City, N. J., applies to the 7th edition of its widely known pamphlet entitled "Graphite as a Lubricant." The company states that this 44-page booklet contains some new matter and new thoughts, and will gladly send a copy to anyone interested in better lubrication.

Munn & Copeland, of New York City, are sending out circulars calling attention to the fact that the present high price of diamonds having led to the abandonment of much diamond drilling, the company has purchased a complete plant of the Davis calyx drills—after thorough investigation—and is ready to contract for work. The drills take a core from 2½ in. diameter to the largest demanded.

The Vajen-Bader head protector for use in all places where gases or smoke make unprotected breathing dangerous is described in circulars and pamphlets sent out by the Vajen-Bader Company, of Indianapolis, Ind. The helmet is stated to be simple, reliable, quickly and easily adjusted and always ready for service. The company furnishes special firemen's outfits, with complete asbestos suits giving protection from flames as well as smoke. A long list of users is given.

The Jeanesville Iron Works, of Jeanesville, Pa., manufacturer of outside packed plunger pumps, has sent out advance sheets from its new catalogue, describing the good points of its pump and giving specifications. Among the pumps shown are one built for the Yellow Aster Mine, Randsburg, Cal., with cylinders 14 by 28 by 6 by 8, and another 22 and 40 by 10 by 36 recently installed at the Cumberland Railroad and Coal Company's mines at Spring Hill, N. S. The company states that it makes a specialty of pumps for handling acid water.

A convenient vest-pocket size memorandum book is issued by Baker & Company, of Newark, N. J., manufacturers of hammered platinum ware and dealers in sheet platinum and wire of any shape. The book is bound with celluloid covers and contains much interesting information upon the use and care of platinum ware. It states that although platinum is not oxidized in the air nor attacked by any single acid, yet the caustic alkalies and the alkaline earths, nitrates and cyanides and especially the hydrates of barium and lithium attack it at a red heat. Phosphorus and arsenic also attack it when heated. Direct contact of platinum with burning charcoal is to be avoided as the silicon from the charcoal ash unites with the platinum, making it brittle. Contact with compounds of the easily reducible metals is especially dangerous at high temperatures, as alloys with platinum having a low fusing point are readily formed. This is especially true of lead. Spirit lamps are preferable to ordinary gas for heating platinum vessels, since when gas is not sufficiently supplied with air a carbide of platinum is formed which oxidizes and blisters the metal. The book contains tables of weights per square inch of platinum, sheet or foil, in ounces and grams, and a table of weights per foot of platinum wire in ounces and grams.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Interstate Convention of Coal Miners and Operators.—This convention at Columbus has adjourned, being in session 10 days. The meeting, as was to be expected, resulted in a compromise. If anything, the advantages lie with the operators. A variety of demands were presented by the miners, while not all the operators sought a 10% reduction in wages. The two real points of difference, the adoption of a run-of-mine scale and a fixed differential of 7c. per ton between pick and machine mining, were not decided by the convention and in this respect the advantage is with the operators. The miners secured an agreement providing for the more general enforcement of the 8-hour day. The debates, though earnest, seemed to have been carried on in a fair spirit and no bitter feelings developed.

A sub-scale committee, composed of the following miners and operators: Pennsylvania, operators, F. L. Robbins and O. A. Blackburn; miners, Patrick Dolan and William Dodds. Ohio, operators, Horace L. Chapman and J. S. Morton; miners, W. H. Haskins and D. H. Sullivan. Indiana, operators, J. Smith Talley and Walter S. Bogle; miners, W. D. Van Horn and William Wilson. Illinois, operators, H. N. Taylor and J. H. Garraghty; miners, William Downey and W. M. Johnson, finally agreed on a scale, which was adopted by the general scale committee and by the convention. It is the same as last year's. It covers operations in Ohio, Indiana, Illinois and the Pittsburg District of Pennsylvania for the year April 1st, 1901, to April 1st, 1902. It states that:

(a) That an advance of 14c. per ton of 2,000 lbs. for pick mined, screened coal, shall take effect in western Pennsylvania thin vein, the Hocking, the basing district, of Ohio, and the block coal district of Indiana.

(b) That the Danville district, the basing point of Illinois, shall be continued on an absolute run-of-mine basis, and that an advance of 9c. per ton over present prices be paid in the district named.

(c) That the bituminous coal district of Indiana shall pay 49c. per ton for all mine run coal loaded and shipped as such. All other coal mined in that district shall be passed over a regulation screen and be paid for at the rate of 80c. per ton of 2,000 lbs. for screened lump.

That the screen hereby adopted for the State of Ohio, western Pennsylvania and the bituminous district of Indiana, shall be uniform in size, 6 ft. wide by 12 ft. long, built of flat or Akron shaped bar, of not less than ⅝-in. surface, with 1¼-in. between bars, free from obstructions, and that such screen shall rest upon a sufficient number of bearings to hold the bars in proper position.

That the block coal district of Indiana may continue the use of the Diamond Bar screen, the screen to be 72 ft. superficial area, of uniform size 1¼ in. between the bars, free from obstruction, and that such screens shall rest upon a sufficient number of bearings to hold the bars in proper position.

That the differential between the thick and thin vein pick mines of the Pittsburg district be referred to that district for settlement.

(a) That the price of machine mining in the bituminous district of Indiana shall be 18c. per ton less than the pick mining rate for screened lump coal, when punching machines are used; and 21½c. per ton less than pick mining rate when chain machines are used. When coal is paid for on run-of-mine basis the price shall be 10c. per ton less than the pick mining rate when punching machines are used, and 12½c. per ton less than pick mining rates when chain machines are used.

(b) That the machine mining rate in the Danville district, the basing point of Illinois, on both punching and chain machines, be 39c. per ton.

That the mining rates in the central district of Pennsylvania be referred to that district for adjustment.

That all narrow, dead work and room turning shall be paid a proportionate advance with the mining rate.

That internal differences in any of the States or districts, both as to prices or conditions, shall be referred to the States or districts affected for adjustment.

The above scale is based upon an 8-hour work day.

The signatures to the agreement were: Western Pennsylvania, thin vein, George Shloederburg, O. A. Blackburn, operators; Patrick Dolan, William Dodds, miners. Ohio, Thomas Johnson, Walter J. Mullins, operators; W. H. Haskins, D. H. Sullivan, miners. Indiana, bituminous, W. S. Bogle, operator; W. D. Van Horn, J. H. Kennedy, miners. Indiana block, W. W. Risher, operator; William Wilson, Henry Wright, miners. Illinois, H. N. Taylor, A. J. Moorshead, operators; J. M. Hunter, W. D. Ryan, miners. Officials United Mine Workers, John Mitchell, president; Thomas Lewis, vice-president; W. B. Wilson, secretary-treasurer. Officials of conference, Walter J. Mullins, chairman; C. L. Scroggs, W. B. Wilson, secretaries.

Oil Production.—The declining market for crude oil tends to restrict field operations in the East, and the number of new wells completed in January was less than in December, though the production increased owing to several good strikes in the Mannington District, West Virginia, says the Oil City "Derrick."

Over 75% of the new production for December came from 207 productive wells in the districts of the Southwest Pennsylvania field. The aggregate yield was 7,407 bbls. out of a total of 9,624. That is, while the Southwest wells averaged nearly 36 bbls. apiece, 252 wells in all the other districts supplied about 9 bbls. each.

January's record for all fields shows 929 wells completed, including 202 dry holes and a new production of 16,418 bbls.—a decrease of 73 wells completed from the December list and a drop of 14 in the number of dry holes, but a gain in new production of 350 bbls., though Northwestern Ohio and Indiana showed a decline from the December report. The record for January, 1900, was 1,045 wells completed, 14,688 bbls. new production and 182 dry holes.

On January 31st the new work in the Pennsylvania and Lima oil fields consisted of 447 rigs and 893 drilling wells, a decline of 51 rigs and 69 drilling wells from the figures of December 31st. On January 31st, 1900, the count showed 671 rigs and 1,021 drilling wells, a total of 1,692.

ALASKA

Yukon District.

There are several reports of new strikes and the camps outside of the Klondike proper seem to have promising futures. The camps of Koyukuk, Forty-nine, Tanana and Manook are reported prosperous. The Tanana field is at present probably the most inviting in the eyes of the majority. The Koyukuk, which last spring attracted many stampeders, the majority of whom turned back without prospecting a great deal, is yielding pay on a number of creeks.

Cape Nome.

Alaska Gold Mining Company of Arizona.—In the United States Court of Appeals on February 11th, Alexander McKenzie, who was accused of trying to grab mining claims in Nome worth $10,000,000, was sentenced to one year in the county jail for contempt of court, from two refusals to obey United States writs. Judge Ross denounced the actions of McKenzie and Judge Noyes as in violation of law and justice.

McKenzie interested Senator Carter, of Montana, Senator Hansbrough, of North Dakota, and others in the mining company. Its capital was $15,000,000, but not a dollar was paid up. McKenzie's plan was to buy jumpers' claims. He and Judge Noyes landed at Nome on July 21st last year. The day after they landed Judge Noyes appointed McKenzie receiver of several claims, the richest claims in Nome, owned by Mr. Lane, of San Francisco, and three Laplanders. Judge Noyes fixed McKenzie's bond at $50,000. Even when McKenzie had $300,000 of gold dust in hand, Judge Noyes refused to increase this bond. Then McKenzie bought other claims of which the judge appointed him receiver. Writs issued by Judge Morrow, of San Francisco, were ignored and finally McKenzie was brought to San Francisco. A compromise was made January 31st by which title was cleared to $10,000,000 worth of Nome claims. All of McKenzie's account were allowed and the suits against him for embezzlement were dropped.

ARIZONA.

Yavapai County.

(From Our Special Correspondent.)

Mingus Mountain Copper Company.—Seven miles south from Jerome, this company is working 4 claims. It is said that the main shaft at

100 ft. has developed a 5-ft. vein carrying silver, $12 gold and copper. The plant consists of a steam hoist, 40-H. P. boiler and 25-H. P. engine. The erection of a smelter is contemplated.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Fremont Consolidated.—These mines, north from Amador City, comprising 4 claims, are developed to a considerable extent, the shaft on the Fremont being down 450 ft., with a 120-ft. crosscut through a 25-ft. vein. The old Dunbar shaft is being unwatered by a large steam pump. The mine is a large low-grade proposition. The new 60-stamp mill will be completed by June.

Kennedy.—The new east shaft of this mine at Jackson is down 2,000 ft. and a crosscut has been started at the 1,600-ft. level to meet one being run from the north shaft.

Mitchell.—The 10-stamp mill at this mine near Pine Grove is crushing steadily and arrangements are being made to increase the plant. The strike recently made has encouraged the owners of claims in the vicinity to resume development.

South Spring Hill.—The 10-stamp mill is running day and night at this mine at Amador City. An electric plant operated by water-power furnishes light for the mill and hoist.

Calaveras County.

(From Our Special Correspondent.)

Glencoe Mining and Milling Company.—This company is continuing the tunnel on the Rockingham Claim near Glencoe, now in 300 ft. When completed it will ventilate the main shaft, which it will cut at a depth of 120 ft. This shaft has been sunk 175 ft. on a vein of fine-looking ore.

El Dorado County.

(From Our Special Correspondent.)

Mt. Pleasant.—Thirty men are employed at the mine and mill at this mine, ¾ mile west of Grizzly Flat. Some rich ore is being shipped to the smelter. Work is rushed day and night.

Shaw.—A new hoist has been completed at this mine near El Dorado, and a number of buildings including a bunkhouse, boardinghouse and blacksmith shop have been erected. Twenty-five men are employed under W. I. Smart.

St. Clair.—The mill at this mine at Kelsey is running full time on good ore, milling over 12 tons daily. Seven men are employed.

Nevada County.

(From Our Special Correspondent.)

Golden Gate Exploration Company.—The complete milling plant installed by this company on its property northeast from Grass Valley will be operated by electric power. Development work still continues under the management of Geo. R. Tuttle.

Plumas County.

(From Our Special Correspondent.)

Lost Channel.—Work at this mine on the east side of Feather River, 2 miles east from Cromberg, comprising 160 acres, is progressing. The work in progress indicates a large body of pay gravel.

Shasta County.

(From Our Special Correspondent.)

Clear Creek District.—In this district the Child's claim and land owned by James Gibson have been bonded to an Oroville syndicate, which will prospect the ground with a Keystone driller. The properties are supposed to be rich dredger lands.

Siskiyou County.

(From Our Special Correspondent.)

Dewey.—The 10-stamp mill in process of erection at this mine in the Gazelle District will probably not be completed before spring on account of the roads. The ore already shipped to the smelter averages $35 per ton.

Trinity County.

(From Our Special Correspondent.)

Brown Bear.—The snowfall has been so heavy in the neighborhood of Deadwood that work on the upper tunnel of this mine has been discontinued. This led to the closing of the mill for want of ore. The working force has been reduced to 25 men. In the upper tunnel 2 strong ledges have already yielded several millions of gold and the fact that both veins have been cut in the lower tunnel may promise long life to the mine.

Tuolumne County.

(From Our Special Correspondent.)

Jeremiah.—In the lower tunnel of this mine at junction of the Tuolumne River and the North Fork, work is pushed on a 4-ft. ledge which for 80 ft. in length is said to average $10 per ton in free gold besides rich sulphurets. This tunnel is in 200 ft., while the upper one is in 100 ft. Both look very promising.

Providence Consolidated Gold Mining Company.—This company has purchased from the Tuolumne Consolidated Mining Company the following mining properties about 2 miles from Carters: The Consuelo, Bullion, Good Enough, Polar Star, Fair Play, Southern Cross, Afterthought and Providence claims, and the Independent, a millsite, also a right of way over the Spring Hill, Bunker Hill and Independent Mines, and a privilege for a pipe line, ditch and dumping ground on the Blue Jay Ground, together with all the other property, water rights and privileges of the grantor. The consideration in the deed was $50,000.

COLORADO.

Eagle County.

Ground Hog.—John S. Doddridge of Red Cliff has completed purchases for equipping his property with new machinery. He has been operating the May Queen lease of this mine. A 60-H. P. boiler and a 40-H. P. engine are being installed. The shaft is down 1,460 ft.

Gilpin County.

(From Our Special Correspondent.)

Gilpin County Ore Shipments.—During January the shipments of smelting and crude ores, concentrates and tailings from Black Hawk, on the Colorado & Southern Railroad, were 288 cars, or 5,328 tons; a gain of 19 cars, or 351 tons over January, 1900.

Cook.—Denver experts are examining the consolidated properties of the Denver & Boston Consolidated Mining and Milling Company, and it is reported that a big sale is contemplated. A change in management has been current talk for a week or two.

Reduced Prices for Smelting.—The miners of this county are considerably elated over the cut in smelting charges, first started by the Kansas City works. From $3.50 per ton the treatment charges for tailings have gone to $2 per ton, on a 10% silica basis, on all ores carrying a low per cent. in arsenic and zinc. The reduced prices will mean a considerable saving inside of a year and will probably result in an increased production.

Lake County—Leadville.

(From Our Special Correspondent.)

Ore Production.—The daily output of all classes of ores averaged 2,750 tons per day last week. Shipments of iron ore are very heavy from the Home, Midas and leases of that locality.

A. M. W.—In the Wolftone claim the ore bodies are being opened up in the 2d, 3d, 4th and 5th levels. The pump at the 900-ft. level will easily handle the water flow of 1,000 gals. per minute. This property shows great bodies of iron and lead sulphides, and low grade carbonates.

Arnold Leasing and Mining Company.—The Rose-Emmet new shaft is down 630 ft. in gray porphyry. At 475 ft. in the upper contact some important exploration is going on.

California Gulch Mining Company.—The ore streak encountered last week looks strong, but it will take 2 weeks to demonstrate this fact. The ore assays 20 to 40 oz. silver and is over 3 ft. wide. No trouble in handling the water is experienced. The directors have no more money on hand to continue development work. A resolution was recently passed to sell sufficient stock to carry on the work, and if sufficient funds cannot be raised to shut down and pull the pumps.

Coronado Mining Company.—The long development work has proved a large and strong iron shoot and the company is mining 100 tons per day.

Diamond Gold Mining Company.—More machinery is going in to handle the water and a new station is being cut at 800 ft.

Georgia Gulch Mining Company.—This new shaft on the extreme southwest of the Leadville Basin in entirely virgin territory is now 150 ft. deep. A good plant of machinery is in place.

Greenback.—At this Graham Park producer a station is being cut at the 1,100 level preparatory to sinking 200 ft. deeper to the lower contacts.

Home Mining Company.—Manager A. V. Bohn has tendered his resignation and Andrew Dyatt is elected to the vacancy. The stockholders have been crying for dividends and have insisted that too much money was being expended on development. Mr. Dyatt is one of the oldest mining men in the camp and made a success of the Mikado lease.

Kubera Mining Company.—This company is operating the G. M., Favorite and Continental claims in Iowa Gulch and sinking a new shaft. At 50 ft. mineralized contact has been encountered.

Leadville Consolidated Mining Company.—J. B. McDonald and others have secured a lease on the Carbonate shaft on Carbonate Hill and machinery is being put in to conduct work at the 510-ft. level.

Mammoth Mining Company.—J. H. Dunn et al. have secured a lease on this territory comprising nearly 20 acres of ground on the gold belt, 1,800 ft. southeast of the Ibex group. The property has been idle for many years. There is a shaft down 325 ft., which will be sunk to contact.

Ohio Gold Mining Company.—This new shaft on the gold belt at 250 ft. is following stringers of ore which give assays of 3 oz. gold.

Vega Mining Company.—Manager Brooks is closing final arrangements with Philadelphia parties for pushing this gold belt property. The new shaft will have to go down about 1,000 ft.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Anaconda Gold Mining Company.—The annual reports have just been published. Since reorganization last spring work in the winze from the main tunnel level has reached 400 ft. and levels are being run west and east, prospecting the property at a depth of 800 ft. Good ore is being saved and shipped from the east drift. There are 25 lease blocks of the company's property now being worked, the royalties from which amount to about $2,000 per month. The treasurer's report for the year show total receipts, $27,817; expenditures, $14.435; cash on hand January 1st, 1901, $13,382; stock in treasury, 354,992 shares.

Alert Gold Mining Company.—This company held a meeting on February 5th. The officers elected will establish their rights by legal proceedings, as the majority of the stockholders, who represented the minority of the stock, left the meeting on a claim that it was not legally called. The remaining stockholders elected officers as follows: W. H. Reynolds, president; W. J. Chinn, vice-president; O. W. Pitcher, secretary and treasurer, and J. H. White.

Elkton Consolidated Gold Mining Company.—The January output is stated to be about $125,000. The net profits on this would be about $65,000. Good headway is being made drifting on the vein on the 7th level and large bodies of high grade ore are disclosed. When stoping starts on this level it is understood there will be a considerable increase in the output. The property is on Raven Hill.

German American Company.—It is reported that considerable ore is being taken out on the Puzzle Claim, situated on the south slope of Gold Hill, and worked through the Ophelia Tunnel.

Gold Crater Mining Company.—A good strike is reported in the Ophelia Tunnel which crosses the ground at a depth of 600 ft. The strike is on the Callie Claim which adjoins the Anaconda and Work properties on Gold Hill. The company also owns 35 acres of patented ground on Globe Hill.

Isabella Gold Mining Company.—It is reported unofficially that good ore has been struck on the 14th level. It is understood that one or two of the veins on this level are either in or near the granite on this level.

Mobile Gold Mining Company.—At the annual meeting on February 4th the following officers were elected: F. H. Pettingel, president; H. E. Woods, vice-president and general manager, and L. A. Civill, secretary and treasurer.

Modoc Mining and Milling Company.—A 3-compartment shaft is started just south of the old workings and will be sunk to 1,000 ft. An order for a heavy plant of machinery has been placed. The mine has rich ore and is an old dividend payer.

Pharmacist Gold Mining Company.—At a meeting on February 4th it was decided to grant a number of leases, covering the company's entire territory. Among the lessees are George Wrockloff, who is also leasing on the Acacia, and F. M. Woods, of the Woods Investment Company.

Pointer Gold Mining Company.—The mine is reported to be in good condition and it is stated that there is enough ore blocked out to last 6 months with the present working force. The property is situated on the Foley spur of Gold Hill, near the Gold Bond.

Portland Gold Mining Company.—At the annual meeting of the stockholders in Council Bluffs, Ia., on February 4th, 2,700,000 shares of the 3,000,000 were represented. Directors were elected as follows: James F. Burns, Frank G. Beck, Irving Howbert, W. S. Stratton and John Harnan. Reports show that the past year has been the most prosperous one in the history of the company. While there is not quite so large a cash reserve in the treasury as at the end of the preceding year, investments have been made which will yield a large profit. About 160 acres of ground were bought and a large mill is going up at Colorado City. New buildings were erected and heavy machinery installed, and the company invested heavily in railway stock. It is stated that 1/3 more men have been used in developing than in production and that the development is 3 years ahead of production. Practically all of the 183 acres of territory owned by the company is patented and free from serious litigation except that involving an injunction restraining the Uintah Tunnel Company from trespassing on Portland ground. The mill at Colorado City will treat 300 tons of ore at the start and the capacity will soon be increased to 600 tons per day. The treasurer's report shows the total receipts to have been $2,449,424; total expenditures, $1,534,513; net profit, $914,911, and cash on hand Janu-

ary 1st, 1901, $466,721. The reports form an elaborate and interesting book.

Sedan Gold Mining Company.—At the annual meeting on February 1st, Mr. S. M. Kellum, lessee on the Sunshine and Sedan properties, was present and gave some details of the recent strike. What is known as the Sunshine dike is 60 to 65 ft. wide, and more or less mineralized throughout. This dike lies along the side line between the Sunshine and Sedan properties, and a question of apex rights may come up. So far the Sedan appears to have the pay mineral. Directors were elected as follows: H. L. West, F. Gilpin, S. M. Kellum, C. E. Titus, Ray Sargeant and William P. Sargeant.

South Park Gold Mining Company.—Work has been suspended on the South Park Mine on Ironclad Hill. An immense amount of work has been done, but no ore in paying quantities discovered. The property is close to the Iron clad Claim of the Ironclad Company, and though considerable ore has been taken out by the latter company the shoot does not extend into South Park territory. The shaft is close to 1,000 ft. deep.

Triumph Gold Mining Company.—It is reported that a contract has been let for sinking the shaft, now over 300 ft. deep, an additional 100 ft. The property is on Battle Mountain, near the Victor Consolidated.

IDAHO.

Custer County.

Yankee Fork.—The sale of Colonel Jas. A. McFadden's mine, situated on Estes Mountain, near Custer and Bonanza, took place recently and a part payment was made by Mr. Walker, of Boston. The property was purchased by a Boston syndicate. This is one of the most important mining sales that has been transacted in Custer County for a number of years.

Idaho County.

Banner.—This gold mine, located at Florence, Idaho, has been sold by its owner, J. H. Herman, of Moscow, Idaho, New York people being the purchasers at a price around $20,000. A 15-stamp mill will soon be erected and active work begun. The mill has not been contracted for as yet.

Blue Jacket.—What is called the finest gasoline hoist ever brought to central Idaho is to be erected at this mine, beyond Salmon River. The hoist is manufactured by Fairbanks, Morse & Company, of Chicago, and is built in sections to allow of transportation on pack horses. The engines develop 20 H. P.. It is hoped to have the hoist installed at the mine soon and sinking the shaft, which it is proposed to put down to the 500-ft. level. At present the shaft is down 220 ft. Campbell & Finch, of Spokane, hold the property under bond.

Buffalo Hump Company.—This company has charge of developments at several properties in the Buffalo Hump District. A mill erected under difficulties has made several runs upon the ore from the Big Buffalo Mine, with fair results. Altogether there has been done some 2,000 ft. of work under the supervision of Mr. Martin, drifting, stoping, crosscutting and sinking. In addition there has been constructed 16 miles of road. The depth of the Big Buffalo shaft is 230 ft. The ledge at that depth is 40 ft. wide. The average values are said to be $4 a ton. There is a 50-H. P. hoist and a 20-drill compressor. On the Vesuvius, ¾ of a mile south, there is a 40-H. P. engine and fine hoist, with a 75-ft. gallows frame and a 3-compartment shaft. The present shutdown is said to be caused by the lack of suitable pumping machinery.

Owyhee County.

De Lamar Mining Company.—The December report states that 4,169 tons of ore were treated during the month, yielding 1,378.5 oz. gold and 4,580 oz. silver. The ore assayed $8.32 gold and $1.22 silver, and the tailings $1.69 gold and 67c. silver. The total income of the month was $31,175, and the expenses $30,897, leaving a profit of $277.

Shoshone County.

Coeur d'Alene Mining and Milling Company.—This company has decided to build a concentrator on its Elk Creek property not far from Wardner.

MICHIGAN.

Copper—Houghton County.

Atlantic.—The product for January was 276 tons 220 lbs. of mineral.

Baltic.—The January production of this mine broke all records. The stamp mill returns showed 170 tons of mineral, not including mass or barrel rock. South of No. 3 shaft on the third level the Baltic lode shows an actual width of 60 ft.

Calumet & Hecla.—No. 2 Calumet shaft has resumed hoisting. It is in the richest part of the conglomerate. Fire broke out there last May and repair work has kept the shaft idle since.

Copper Range Railroad.—Contractor Johnson has begun work on a 12-mile extension which is to handle stamp rock of the Adventure, Baltic, Champion and Trimountain mines between the main line and the mill sites alongshore of Lake Superior.

Mass Consolidated Mining Company.—This company has elected Chas. A. Lamb president and S. D. Whittemore vice-president. Owing to the amount of time necessary to be given to the affairs of the company, Chas. H. Bennett declined to serve as secretary and treasurer for the coming year, and F. W. Hunton of the board of directors was chosen for the office. Mr. Lamb was for some years Western manager of the National Tube Works.

Quincy.—The product for January was 974 tons, 1,600 lbs. of mineral, 120 tons more than in any preceding month. The mine is working at its full capacity, though sending rock to the mill that would not pay unless at the present high price of the metal, the best ground being reserved until such time as the price drops, and there are 8 heads in commission at the stamp mill.

Iron—Menominee Range.

(From Our Special Correspondent.)

Aragon.—At this mine at Norway everything is being put in shape for sinking No. 5 shaft. This work will begin within a few days. This shaft will have 4 compartments, steel head frame and will be sunk in the hanging wall.

Chapin.—A leader of water recently struck in the Hamilton shaft at Iron Mountain made 1,600 galls. per minute and resulted in laying off 150 men temporarily while the boilers were put at work. Similar streams of water have been struck before in the limestone hanging wall on the levels of this shaft. It is rumored that the large Allis Cornish pump which was dismantled 3 years ago will be set up and a shaft sunk for the pipes and rods to handle the water.

MINNESOTA.

(From Our Special Correspondent.)

The Duluth & Iron Range road will begin shipments as soon as the Sault is open. There is so far no ice of consequence in Lake Superior. Boats were running from Duluth to north shore ports up to January 9th. It is probably that navigation will open early. The Duluth Iron Range will handle during the year, if present calculations are carried out, not less than 4,500,000 tons. The mines of the Federal Steel Company will enlarge their output, the Carnegie mines at Ely will increase at least 200,000 tons, and the road now has the Republic mines to add to its business. Besides these there are some new mines, the Union, which will probably produce 150,000 tons, and the Corsica, which will make a small output. The Duluth, Missabe & Northern road will pass the 4,000,000-ton mark. It will have among new mines the Stevens and some other properties at the east end of the range and some new ore from around Hibbing. Carnegie shipments will be increased, as will the Adams, Spruce, Biwabik and others. The Eastern Minnesota will have in addition to the mines that shipped last year, the Chisholm, Sharon, which is expected to make 250,000 tons, and some others. The Penobscot, Sauntry, Clark and Stevenson will increase very greatly, and the road should handle not less than 2,500,000 tons, or 1,000,000 tons ahead of last year. It is probable that a movement of 12,000,000 tons out of Minnesota for the year will be moderate.

At the annual meetings of the several Rockefeller mining companies and of the Duluth, Missabe & Northern road the old officers and directors were re-elected. There will be no change in the policy of the companies and it is not at all probable that any dividend will be declared this year on the stock of the controlling company, the Lake Superior Consolidated Iron Mines.

Iron—Mesabi Range.

(From Our Special Correspondent.)

C. H. and E. L. Bradley, of Duluth, have secured an option on 160 acres in the S. ½ of section 15, T 58, R 19, and will begin explorations at once. There is a royalty of 20c. a ton and an annual minimum of 80,000 tons for a 50-year lease. The property is well located.

Biwabik Mining Company.—This company is stripping steadily on its own account, and saves much thereby. The extent of mining for the coming season has not been determined.

Chisholm.—This mine will be opened at once. J. H. Pearce, of Duluth, who was superintendent of the Commodore until recently, is already at work with a large force. The mine will ship this year.

Oliver Iron Mining Company.—This company has 10 diamond drills at work near Mesabi station, on lands belonging to several individuals and the state of Minnesota, and is said to be finding good ore. In the same vicinity O. D. Kinney has several drills at work. There is now more exploring thereabouts than at any other part of the range.

Penobscot Mining Company.—This company is preparing for about double the output of last year, intending to get out not less than 300,000 tons in 1901. The new pumping system is said to work fairly well and to save some money. The old pumping system was an aggregation of pumps put in as they were found necessary.

Sharon Ore Company.—This company is preparing to move 250,000 tons in 1901. If it succeeds it will break the first season record for underground mines. Drake & Stratton have moved about a fourth of their shipping contract of 400,000 yds. and have a hole from 22 to 25 ft. deep and more than 450 ft. square. The ore was covered by 50 ft. of surface, of which the upper half is gravel, with few boulders, and the lower half a fine sand. A shaft will go 70 ft. through ore when a level will be cut and a drift run under the stripping. As fast as earth is cleared off raises will be put through and the ore milled down to pockets. The shaft is 3-compartment with 2 6-ton skips hung in balance, and it is expected to mine not far from 3,500 tons every 24 hours. The ore runs from 61% to 64% iron, is better physically than most on the Mesabi, and is below .040% phosphorus. The ore body is nearly 200 ft. thick in places and quite regular. It is in a swamp, but will have no great trouble with water. The mine will ship to the Sharon Steel Company over the Eastern Minnesota road exclusively.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—With a shut-down to continue during February and the certainty that one-fourth of the output will be exported for a year after the contracts of producers with the Missouri-Kansas Zinc Miners' Association are signed, buyers took all the ore they could get last week and paid in many cases $2 per ton more for ore than in the previous week and in all cases at least 50c. more. The ore of C. B. Walker & Company on the ground of the Missouri Lead and Zinc Company sold at $29.50 per ton and a number of large lots were sold at $28 per ton, while the average for the Joplin ore was about $27 per ton. Lead sold all the week at $22.50 per 1,000 lbs., the same as last week.

Following is the turn-in by camps for the Joplin District for the week ending February 9th:

	Zinc lbs.	Lead lbs.	Value.
Joplin	2,327,860	330,730	$38,868
Carterville	1,496,780	325,320	24,533
Galena-Empire	1,394,050	187,790	19,988
Aurora	945,470	10,130	10,393
Oronogo	649,060	15,640	8,685
Webb City	479,580	26,550	6,112
Belleville	608,650	.....	8,521
Granby	217,000	18,000	2,160
Duenweg	137,650	30,760	2,069
Alba	85,750	.....	1,115
Stotts City	87,440	.....	1,180
Cave Springs	238,450	6,300	2,903
Spurgeon	94,390	14,180	1,452
Carl Junction	51,380	.....	668
Peacock City	63,720	12,550	1,110
Spring City	59,890	9,380	927
Beef Branch	12,000	32,580	817
Carthage	40,650	.....	518
Roaring Springs	21,830	11,420	475
Central City	13,370	9,380	345
Total	8,979,970	1,040,710	$132,839
Total 6 weeks	56,536,750	6,874,930	$672,730

Zinc value, $110,531; lead value, $22,308.

During the corresponding week last year, the best grades of zinc ore sold at $34.50 per ton and lead at $27.75 per 100 lbs. The sales were less than last week by 135,900 lbs. of zinc and 35,640 lbs. of lead, but the value was greater by $30,281. For the first 6 weeks last year the lead sales were less by 649,760 lbs., the zinc sales greater by 529,170 lbs., and the value greater by $199,390. As compared with the previous week, the sales were less by 1,922,740 lbs. of zinc and 33,480 lbs. of lead and the value was less by $17,572.

Grace.—Two full boxes of dynamite exploded in a drift of this mine near Joplin recently and the ground boss and 2 of the ground men were blown 60 ft. All three suffered from violent hemorrhages of the nose and ears and were stunned, bruised and temporarily deafened, but none was seriously injured.

Missouri-Kansas Zinc Miners' Association.—The assay basis for the export prices is $25 per ton for 60% ore. Joplin men have $5,000 or $20,000 in the stock of the association in addition to furnishing ore for export. At a meeting of producers at Aurora it was agreed to take $5,000 stock in the association and furnish practically one-fourth of the ore from that camp for export.

South Joplin Mining Company.—The mill on this company's ground was burned last week, entailing a loss of $5,000.

MONTANA.

Beaverhead County.

(From Our Special Correspondent.)

Coast Dredging Company.—This company has headquarters at Monmouth, N. J., with a dredge on Grasshopper. Its statement gives the capital stock as $100,000, of which $63,000 has been issued and paid for. The assets in real and personal property are $121,140, the liabilities $58,138. The company did not run its dredge last season ow-

ing to attachment procedures at the close of the 1899 season.

Montana Gold Dredge Company.—This company's annual statement shows its capital stock to be $1,000,000, with liabilities of $40,000. It claims to have had a very successful season's work.

Montana Grasshopper Gulch Placer Mining Company.—This company's statement shows the capital stock to be $150,000, with no liabilities. Last season was a successful one. The company will build a new boat in the spring.

Montana Copper and Gold Mining Company.—This new corporation is organized under the laws of Wyoming to develop the Mauser Copper mines 12 miles east of Dillon. The capital stock is $1,000,000, with H. A. Hull, W. H. Hull, J. M. Hull and H. W. Carter incorporators. Ex-Gov. B. F. White is the local agent.

Wake Up Jim.—This property, at Lyon City, 10 miles from Melrose, has opened a body of concentrating ore which will be milled at the Greenwood Company's concentrator about 1 mile from the property. The mine is owned by George Tong, Louie Kaufman and others of Butte.

Granite County.

(From Our Special Correspondent.)

Sunrise Mining Company.—Judge Henry N. Blake, United States Court Referee in Butte, is hearing the case of the stockholders and creditors. The company has been in legal squabbles for several years, with indications of stormy weather for some time. The litigation has so many phases that it is difficult to give an intelligent resume. During this trouble damages have been sustained of something like $60,000 by the washing away of a valuable lot of tailings.

Jefferson County.

(From Our Special Correspondent.)

Cowan.—This mill near Pony has been shut down since January 1st, while the Cammett concentrators were exchanged for Frue vanners. Everything is complete and the stamps are pounding again.

David Copperfield.—J. O. Brisco, of Wickes, has taken a bond on this old property on the south slope of Alta Hill.

Minnie Healy.—A deed for a certain portion of this property has been placed on record from Miles Finlan to Boston & Montana Mining Company. The consideration is $140,975.

The legal entanglements multiply. The last suit is W. A. O'Brien vs. Miles Finlan.

Oconto & Kongsberg.—This property, 4 miles from Boulder, on the east slope of Baltimore Mountain, is under bond to T. H. Michal and associates for $30,000. The tunnel is in about 500 ft. A crosscut is being driven to the main ledge.

Old Alta.—Pat. Manning & Company are working the old levels of this property, making regular shipments to East Helena. For 10 years this mine was the main ore supply for the Helena and Livingston smelter.

Lewis & Clarke County.

(From Our Special Correspondent.)

East Helena Smelter.—Another furnace is in commission, increasing the quantity of ore treated to 1,000 tons a day. At the same time construction work on the extensions of the plant is being continued as fast as weather will permit. The bag houses and the horizontal flue for the blast furnaces are being built. A new warehouse 60 by 75 ft. has been completed and the machine shop has been remodeled.

Hidden Treasure Mining Company.—J. J. Barrett, of Butte, has been elected president of this company. C. F. Chapin is to assume charge as superintendent. Miners will begin driving a tunnel. It is the intention to build a 10-stamp mill at once. The property is about 2 miles from Marysville and joins the old Gloster and Piegart.

Kenwood.—This copper property, owned by Huffaker, Holbrook and Higgins, of Helena, has been taken under a bond for $40,000 by T. B. Miller, of Helena, who is said to be acting for W. A. Clark. A cash payment of $5,000 has been made. A deep shaft will be sunk. Parties connected with the East Helena Smelter had the property under bond last year for $20,000 but surrendered it.

Montana Standard Mining Company.—The Omaha tunnel of this company is now in over 700 ft. The company is stocked at 2,000,000 shares and the property consists of some 15 claims.

Peck Montana Company.—This mill is mining almost exclusively on ores from the Rimini District.

Madison County.

(From Our Special Correspondent.)

Kennett Mining Company.—W. B. Milliard et al., of Omaha, Neb., have deeded to this company organized under the laws of Delaware the Kennett group of mines near Virginia City. The consideration on the deeds is $699,000.

Lake Shore.—The Rand drills and compressor plant at this mine is working splendidly. The company is to drive the main working tunnel 1,000 ft. Mill construction will be carried on as rapidly as possible in order to have the new plant installed at an early date. The new sawmill machinery parts, to take the place of those recently burned, have arrived at Twin Bridges and been hauled to the mine. The electric plant for the mine has arrived and will be put in place. President E. L. Shafner, of Cleveland, has been at the mine.

Milwaukee & Montana Mining Company.—This company at Sappington has cut the lead in the Chile Mine at the 300 level. The lead is 9 ft. wide, fully 6 ft. of which is good milling rock. The property is located at Sand Creek, about 12 miles from Pony and 3 miles from Sappington. It has been worked more or less during the past 7 years. The present owners are Butte, Minneapolis and Milwaukee men.

Twin Bridges Smelter.—It is claimed that these works are to be converted to a copper plant. As a lead smelter it has not been a success.

Strawberry.—This property near Pony is worked by J. F. Cowan, who is running the 10-stamp mill and shipping concentrates to Butte. The bond on the property has been paid.

Missoula County.

Greenwood Milling Company.—This mill at the old Hecla dump has been closed down owing to a freeze-up of the water supply.

Silver Bow County.

(From Our Special Correspondent.)

Eight-hour Law.—President Scallon, of the Anaconda Company, has announced that the 8-hour day will be introduced at smelteries at once and continued as fast as is consistent with the proper running of the plant. The men employed on 12-hour shifts will be first to feel the change.

Amalgamated Copper Company.—All the miners employed by this company have been put on 8-hour shifts.

Butte Miners' Union.—The life of this union, which has just expired by limitation, will be revived at once for another 20 years. The new articles of incorporation have been signed by 2,600 names.

Butte Sampling Works.—Shipments of 300 tons per week of silicious silver ore go to the American Smelting Company's plant at Great Falls. The demand for this class of ore was never as great as now. The treatment rates are quite favorable. The sampling works make a freight and treatment charge of $7. Ten years ago the local smelters were charging $15.

Butte Water Works.—Owing to a scarcity of water the big mines are closed down. The trouble is from the failure to get the water into the city from the Big Hole River. It is thought that a few days will remedy the trouble, as the connections are made. Meantime the Great Fall and Anaconda smelters are liable to have trouble getting ore.

Cary.—Arrangements have been made to sink a new shaft on this silver property, situated north of the big butte. The claim is virgin ground, as no work has been done since the patent was obtained in 1877. Geo. Tong, the owner, has bonded it to Tacoma parties. The ore is manganese oxide.

Gem.—The shaft is down 600 ft. Sinking will continue to the 1,000-ft. level.

Metz.—This claim carries a 15-in. streak of gold ore. It is located near the old Colorado Smelter, 2 miles southwest of Butte, John Metz located the claim, which is now tied up in litigation.

Montana Ore Purchasing Company.—Clerk Rickerts, of the Supreme Court, has approved the additional bond filed by this company in the Pennsylvania appeal case. The bond was for $450,000 to make up for the deficiency of the first bond owing to the courts cutting down the amounts signed for by Heinze, McGinnis & Gifford. The new bond is $842,500. The sureties are John Noyes, $212,500; T. R. Hinds, $75,000; Simon Howsworth, $25,000; James L. Hamilton, $50,000; Geo. H. Robinson, $50,000; H. C. Bellinger, $50,000; Henry Mueller, $100,000; Dan. Tewey, $75,000; T. F. Hickey, $25,000; Louis Bernheim, $30,000; N. J. Beilenberg, $50,000; Geo. C. Fitschen, $100,000.

North Star & Salisbury.—A movement is on foot to reopen this silver property, 1 mile north of Walkerville. Thirteen years ago 50,000 tons of ore milled at the old Silver Bow Mill averaged 32 oz. in silver. J. A. Murray, George Tong and Dr. Peter Mussigbrod are the principal owners.

Oneida.—The Largy Estate intend to sink the present shaft to 500 ft.

Original.—A deed has been filed transferring a 1-3 interest to the Colorado Company. The consideration is $5,000.

Silver Hill.—The mineral rights of this property with portions of the original claim have been bought by the Anaconda Mining Company; consideration, $9,000.

NEVADA.

Storey County—Comstock Lode.

Utah Consolidated Mining Company.—At the annual meeting in San Francisco recently 85,000 shares were represented out of a total of 100,000 shares. Elections were: Directors—A. S. Wolberg, H. Zadig, George R. Wells, E. Gauthier, and Werner Stauf. Officers—A. S. Wolberg, president; George R. Wells, vice-president; A. W. Havens, secretary; James H. Kinkead, superintendent.

NEW MEXICO.

Bernalillo County.

Silver Bar Copper Mining Company.—This Albuquerque company recently purchased the Cooney properties in the Mogallon District, paying over to Capt. Michael Cooney $46,000. The properties were located and worked by J. C. Cooney, who was shot and killed by Apache Indians in April, 1880. Since that date Capt. Cooney, a brother, has been in charge.

Donna Ana County.

New Mexico Lead Company.—This company has just started its new concentrating plant in the San Andreas. The concentrates will be hauled to Las Cruces and shipped to a smelter.

NORTH CAROLINA.

Rowan County.

(From Our Special Correspondent.)

Dutch Creek.—These mines were sold by the receiver, Capt. W. M. Wiley, of Salisbury, on February 4th, to Chas. L. Herzig, of New York, for $1,225. The property was formerly owned by the Dutch Creek Mining Company, of which the late J. J. Newman was principal owner. The property is considered much more valuable than the figure at which it was sold indicates.

Stokes County.

(From Our Special Correspondent.)

United States Colliery Steel and Iron Company.—This company has been organized by Col. J. S. Carr with a $5,000,000 capital. The office at present is in Durham. The mines comprise some 6,000 acres of iron ore land in this county as well as in Tennessee.

OREGON.

Josephine County.

T. F. Rouke, of Portland, has purchased about 360 acres of placer land of Mr. Trefether, about a mile from Althouse, and is putting on ditches and piping plant.

Althouse Hydraulic Mining Company.—This company recently had its plant damaged by a rise of Althouse Creek, but now has its tunnel about repaired and is to resume work.

Diamond R.—This mine being worked by the Larribee Brothers has been frozen up for a few weeks.

Osgood.—This placer mine in Hogue Hill, about 3 miles from Althouse, is running a bedrock cut. Mr. Osgood is also doing development work on Allen Gulch. He has about 1,500 acres of mining land.

Simmons & Cameron.—This placer mine, ½ mile north of Waldo, is in operation. It has an abundance of water and is running two giants.

Spencer & Cass.—This copper claim, about 2½ miles from Althouse, on Althouse Creek, is running a tunnel to strike the ledge about 200 ft. deep. There are 8 parallel ledges.

Strong.—This copper claim, 10 miles from Waldo, has shut down. The property was recently sold for $10,000.

Wimer & Reames.—This placer mine, located about a mile northwest of Waldo, is piping day and night, running 2 large giants.

PENNSYLVANIA.

Anthracite Coal.

Church.—Two hundred employees at this mine of the Providence Coal Company went on strike February 12th because Foreman Evans discharged their grievance committee. The committee had been sent to confer with the foreman about increasing the pay for loaded mine cars from 65 to 75c.

Lattimer.—The 835 men and boys employed at this colliery of C. Pardee & Company near Hazelton, who went on strike because the company would not reinstate two men discharged for cause, returned to work on February 11th after being out 19 days. The two men were not reinstated.

Seneca Coal Company.—The Lehigh Valley Coal Company has, it is said, about completed negotiations for the purchase of this company's mine at Pittston. It is also said that the Lehigh Valley Company now has an option on the mines of the Mitchell Coke and Coal Company, near Gallitzin.

Bituminous Coal.

(From Our Special Correspondent.)

A company of Uniontown men recently sold to J. V. Thompson, D. M. Hertzog, A. F. Cooper, Thomas F. Lackey, of Uniontown, and William H. Binns, of California, a tract of 11,000 acres of

coal land in Green County, on Wheeling Creek, for $198,000.

Sherrick Brothers, of Scottdale, have bought the coal under the Ramsey, Grimes and Burchfield farms in Springhill Township, Fayette County, at an average price of $225 an acre. The tract includes about 400 acres, and negotiations are pending for the purchase of adjoining farms.

Acme.—This plant of the W. J. Rainey people is being improved. It has been enlarged from 126 to 200 ovens, and 100 new ovens will be built in the spring.

Continental Coke Company.—Continental No. 1 plant of this company in the Klondike is rapidly nearing completion. The hoisting shaft is down 180 ft., with 100 ft. to go before coal is struck. The air shaft, 200 ft. from the main shaft, is down 230 ft. About 200 of the 400 ovens are completed. The tipple is being built by the American Bridge Company. It is entirely of steel, 90 ft. high, equipped with the latest machinery.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain, Clay and Marble Company.—This Detroit, Mich., company is patenting a portion of its ground 5 miles northeast of Custer.

Chilicoot.—Eastern parties, who have leased this mine 8 miles east of Custer, have encountered ore in a drift at the bottom of a 175-ft. shaft.

Lizzie.—The Willow Creek Mining Company, of Le Mars, Ia., has patented its ground 2 miles east of Custer. A shaft has been sunk 300 ft. and considerable drifting has been done, but work has stopped.

Mayflower.—F. C. Graydon, of Custer, general manager of the Chicago Mica Company, has purchased the hoisting plant of the Vigilante Mining Company, which was used to sink the Vigilante shaft, near Custer. The plant will be placed at the Mayflower, which is being sunk 200 ft. on a strong ledge of free milling ore.

Lawrence County.

(From Our Special Correspondent.)

Belt Development Company.—O. B. Amsden, engineer for this Colorado company, has put on a night shift at the company's shaft at Kirk. work on the shaft house has started. The shaft is 4 ft. 6 in. x 13 ft. 10 in. in the clear. It will be sunk that size to the 100-ft. level and then possibly made but 2-compartment.

Cyanide Plants.—The new cyanide plants in Lawrence County are meeting with success. The Wasp No. 2 is treating about 45 tons per day and getting from 77% to 82% extraction. The ore is a quartzite. R. F. Flinterman, of Deadwood, is the chemist in charge. The Spearfish Mining Company, of Colorado Springs, Colo., is said to be mining and treating the ore at its mines in the Ragged Top District, for $1.60 per ton. The ore is a lime, very porous, and is ground coarse. The company will soon enlarge its tankage to equal the crushing capacity. The plant completed last month at the Golden Crown Mine, in the North Lead District, is treating 50 tons daily. The Cleopatra Company is treating about 45 tons at the Cleopatra Mine, in the Squaw Creek district. The Shawmut Mining Company, of Boston, is preparing to enlarge the crushing capacity at the Esmeralda Mine, in the Blacktail district. The ore is a cement and it is run through a Huntington mill and then cyanided. It is stated that there are to be 2 new plants of good size built on Whitewood Creek, between Deadwood and Whitewood, to treat tailings from the Homestake. Otto Grantz is planning to build a 50-ton plant at the Hidden Fortune Mine in the North Lead District. The Homestake Company has surveyed the site for the second large cyanide plant to be erected at Central City.

Dakota Mining Company.—Ground has been broken for the new 100-ton cyanide plant of this Deadwood company on the old Hickok millsite, a quarter of a mile from the Golden Reward smelter. The ore will come from the Jack Pot and Gunnison Mines, in Portland District.

Dakota Maid.—It is said that the first payment has been made on this mine by Eastern men, who took a bond from the owner, Joseph King, of Deadwood.

Denver-Black Hills Mining and Milling Company.—The extra machinery for the Davy stamp mill is arriving from Denver. There are 20 stamps in the mill, with places for 20 more. The company is getting the Cora Mine in working shape. The quartzite floor will be worked first. It contains free gold, silver and lead. The Cora Mine was once one of the richest producers in the Black Hills. Ore was hauled to the Missouri River and shipped to St. Louis by steamer. There are 2 patented claims and a millsite.

Niagara Tin Smelting Company.—This company controls 80 acres of ground in the Bear Gulch District and proposes to erect a 150-ton concentrating plant and ship concentrates to a smelter, to be erected at Niagara Falls. The ground was owned by A. J. Johnston, of Spearfish. The officers of the company are: President, Robert Avery, New York; vice-president, Allan G. MacDowell, New York; treasurer, James Gillfillan, New York; secretary, A. W. Wanamaker, New York.

Redwater Mining Company.—J. D. Hardin and Charles Hardin have organized this company in Chicago to consolidate all the interests of the 5 Hardin companies, which made so much noise in Two Bit 3 years ago. The Redwater Company has started the Chicago & Two Bit hoist works and development will be confined to this shaft. The shaft struck quartzite at 512 ft., but no drifting or cross-cutting was done before the company closed. At the Original Hardin Mine, in Two Bit, some pyritic ore was encountered.

Slavonian.—It is stated that this claim has been sold to Colorado men and the first payment of $3,000 paid. The mine shows bodies of refractory ore. The price is said to be $30,000. The mine is in the Ida Gray District.

Pennington County.

(From Our Special Correspondent.)

Black Hills Copper Company.—This company, of Benton Harbor, Mich., is meeting with success in its incline in the Rochford copper district. At about 300 ft. from the surface the ledge is reported rich enough to work. It carries gold, silver and copper.

Blue Lead.—It is expected that the Maloney-Blue Lead Company will be able to strike the copper ledge by May 1st. The material through which the long tunnel is run is a little softer.

Golden Slipper.—J. B. Safford, of Chicago, has bonded this mine, 4 miles east of Hill City. It is stated that the water will be drawn and the shaft, now 300 ft. deep, sunk deeper.

Gopher Mining Company.—This Minneapolis Company is sinking the 50-ft. shaft on the old Lena gold ledge to the 100-ft. A 65-H.-P. Otto gasoline engine and hoist is installed. The ledge is about 18 in. wide and rich in free gold. The company is composed of a dozen newspaper men. Two Tremain mills have been bargained for from the Gates Iron Works, Chicago.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending February 9th there was sent forward from the several smelteries 18 cars, or 764,319 lbs., of silver-lead bullion; 117 cars, or 4,960,370 lbs., silver-lead ores, and 4 cars, or 196,163 lbs., of copper bullion.

Carbon County.

Coal Miners' Strike.—A strike of the miners employed at the Scofield mines of the Pleasant Valley Coal Company, which has been on several weeks, seemed at first to threaten a complete suspension of coal mining in the state, but now the strike is apparently broken. The Scofield miners tried hard to get the employees of the Pleasant Valley Company at the Castle Gate mines to strike also, but with little success. The Castle Gate and Sunnyside men generally continued at work. As a result the miners at the Clear Creek and Winter Quarters collieries who went out are applying for work again, and though the Pleasant Valley Company has been hampered by the strike and will have trouble in getting miners to supply the place of those who have left the coal fields, yet it has apparently won out. The strike seems to have been the work of labor agitators who showed poor judgment.

Juab County.

(From Our Special Correspondent.)

During the week ending February 9th there were sent forward from the 3 Tintic railroad points 98 cars of ore, 4 cars of concentrates and 40 bars of bullion, made up as follows: Centennial-Eureka, 20 cars; Gemini, 11 cars; Uncle Sam, 5 cars; May Day, 2 cars; Grand Central, 19 cars; Mammoth, 4 cars; Carisa, 7 cars; Lower Mammoth, 4 cars; Swansea, 8 cars; South Swansea, 7 cars; Tesora, 5 cars; Star Consolidated, 4 cars; Undine, 2 cars; Mammoth Mill, 4 cars concentrates, 2 bars of bullion, and Eureka Hill, 38 bars bullion.

Salt Lake County.

(From Our Special Correspondent.)

Ben Butler.—The strike is opening up well. The face of the level shows 5 ft. of silver-lead ore.

Bingham Copper and Gold.—The smelter is running steadily and giving satisfaction.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—In the week ending February 9th the smelting product marketed through the Mackintosh Sampler was 4,173,310 lbs., representing the output of the camp. The several contributors were: Anchor, crude ore, 919,300 lbs.; concentrates, 510,330 lbs.; Daly-West, crude ore, 641,530 lbs.; concentrates, 731,320 lbs.; Silver King, crude ore, 586,400 lbs.; concentrates, 784,600 lbs.

Washington County.

(From Our Special Correspondent.)

Dixie.—W. S. Tucker and associates, of New Haven, Conn., have bought the Dixie Mine, property of the St. George Copper Mining Company, for $200,000, $25,000 cash February 8th and the rest in payments covering 4 months. W. F. Snyder, of Salt Lake, owned the control and negotiated the sale. The property was examined by P. J. Donohue, of Salt Lake, and Oscar Szontagh, of San Francisco, Cal., for the purchasers. A good body of high-grade ore and a large tonnage of low-grade ores is reported in sight.

WASHINGTON.

Ferry County—Republic.

(From Our Special Correspondent.)

Butte & Boston.—The superintendent reports that the east cross-cut has intersected fair grade quartz 7 ft. wide.

California.—The shaft is down 58 ft. below the 100-ft. level following rich ore. A steam hoist and pump have been installed. Ore is shipped to the Grand Forks Smelter whenever teams can be had.

Chico.—The superintendents' reports are very flattering. The north drift on the 300-ft. level is in 70 ft.

Flag Hill.—The east drift is in 70 ft. The claim is developing into a staunch property.

Morning Glory.—This mine is producing rich shipping ore from an 8 or 10-in. vein. At present some specimens show free gold, and are the best yet taken out.

Princess Maud.—The north and south drifts in the winze, 300 ft. below tunnel level, are being driven with one shift and one machine drill.

Quilp.—The superintendent reports 75 tons of ore shipped to the smelters during the last 30 days. The roads are bad and teams scarce. About 100 tons of ore was broken in the upraise above the No. 3 level recently with a single round of holes. The raise will soon hole through to the No. 2 level. Another lift being sunk in the main winze will be 400 ft. below the adit before another station is cut. The present hoisting capacity is good for 500 ft. below the adit level. Some outside improvements have been made recently. Some of the ore broken carries spots and streaks of very rich mineral. About 22 men are employed in and about the mine.

San Poil.—Work is resumed in the north drift on the No. 2 tunnel level, with 2 men on one shift. It is in over 300 ft. and has about 100 ft. further to run to the north end line of the property. The last ore shoot passed was low grade.

WEST VIRGINIA.

Mercer County.

(From Our Special Correspondent.)

Development work is still going on on Paint Creek, Piney Creek and new operations opening to the westward on the Norfolk & Western Railroad at Cambridge, Tug Fork, etc. Coal lands of all kinds are being bought up.

Improvements and additions in coal and coke plants in the Kanawha, New River and Flat Top coal fields go steadily along. Almost every company is doing some new work or repairing the old plants.

Norfork.—These mines are to put in an electric plant at Angle. Crane Creek, on the Goodwill and Summers branch of Norfolk and Western Railroad is to be opened up in the spring; it will require about 10 miles of railroad and will give an outlet to several large leases controlled by L. E. Tierney, Wm. McQuill, S. M. Buck, and others. The seam is the same as worked Loup Creek and averages about 5 ft. thick.

Southwest Improvement Company.—This company, of Pocahontas, Va., is to have its name changed to the Pocahontas Colliery Company.

WYOMING.

Carbon County.

Ferris-Haggarty Copper Mining Company.—The recent report of J. A. Rendle, treasurer of this company, which owns the Ferris-Haggarty Mine at Encampment, shows receipts from sale of ore for year ending January 24th, of $295,469, while the ore in transit was valued at $24,500. Expenses included $69,746 for permanent improvements, $166,857 for wages and $16,000 for merchandise. This leaves a net profit of $252,-603. The following items only are included in the statement of the cash assets: Cash on hand January 26th, 1901, $23,504; merchandise on hand. including hay, grain and wood, $28,558; ore in transit (estimated), $24,500; total, $76,562.

Fremont County.

Federal Gold Mining Company.—This company, with $2,500,000 capital stock in $1 shares, proposes to work the Carissa Mine at South Pass. This mine was discovered in 1867 and has been worked intermittently since. The lode carries arsenical gold ores and is pockety. The officers of the company are: J. C. Spry, Chicago, presi-

dent; J. F. Wallace, Chicago, vice-president; F. M. Tracy, secretary and treasurer; B. N. Tibbals and H. A. Tilcomb, South Pass, managers.

FOREIGN MINING NEWS.

EUROPE.

Switzerland.

A French company has been for some time working a gold mine at Gondo in the Canton of Wallis, and is said to have taken out about 60,000 fr. in gold. The company claims to have found a vein of pyritic ore, and is now putting in a plant, including air compressors and rock drills for mining, crushing and concentrating machinery for saving the sulphurets, and other necessary machinery.

MEXICO.

Lower California.

(From Our Special Correspondent.)

Esperanza Gold Mining Company.—A lot of railway material has been landed on Cedros Island for this company. The mines are located about 4 miles from the landing and the company intends to connect the 2 points by a tramway.

SOUTH AMERICA.

British Guiana.

The gold production reported by the Department of Mines, on which royalty was paid for the month of December, 1900, was 14,463 oz. In 1899 the output was 13,376 oz., showing an increase of 1,087 oz., or 8.1%, in 1900.

COAL TRADE REVIEW.

New York. Feb. 15.

Anthracite.

The January output of 5,153,,400 tons broke all records for that month and the present indications are that the February production will be a record-breaker likewise. The present cold wave has been accompanied by high winds, a more potent factor in coal consumption than extremely low temperature, and it has already sent a lot of coal up the chimney. Another week of this sort of weather will put producers and dealers on easy street till spring opens. At present the demand for coal is widespread. Consumers at the head of Lake Superior will apparently have to burn soft coal or get anthracite by rail before navigation opens. Supplies on the docks were short a month ago and now there is not enough on hand to last through. At St. Paul and Minneapolis the trade is supplied by all-rail shipments. In Chicago territory demand picked up at the same time that heavy snow-storms in New York, Pennsylvania and Ohio interfered with all-rail shipments. As a result, a rather dull market soon became an active one and at present every ton of coal that gets into Chicago is wanted. At points in Western New York retail buying has been unusually brisk. This is due to the weather and the falling off in the supplies of natural gas. This falling off was noticed in the cold weather 2 winters ago; the present weather emphasizes the fact that it is likely to be but a short time before many users of natural gas, who have not burnt coal for years, will have to rely on anthracite as their regular source of heat. At inland points in the East and along the seaboard the cold, blustering weather continues, and retail buying is correspondingly active. Coastwise shipments are suspended, so there is likely to be a considerable coastwise movement when the weather moderates. At New York there is enough coal coming forward to supply all demands. Broken and egg sizes continue in liberal supply, stove, nut and pea are wanted. Movement of barges from dock to dock is slow on account of the ice. We quote for free-burning white ash, f. o. b. New York Harbor ports: Broken, $3.75; egg, $4; stove, $4.50; nut, $4.50; pea, $3.

Bituminous.

The seaboard bituminous trade, in spite of the vitalizing influence of cold weather, continues dull. Orders, to be sure, come in thick; a week ago they were scarce, now there is something like a new demand; but there is plenty of coal at tidewater and a lot more on the way. If the demand increases producers can easily increase shipments from the mines; these now are cut down considerably. The most vital question at present is how to get loaded barges through the packs of ice at most receiving ports to the docks of consignees. A number of cases have been reported where barges are lying but a short distance from receiving docks, yet are unable or do not dare to take the chances of pushing through the floes; this has happened where the consignee was entirely out of coal. New York Harbor, New Haven and Narragansett Bay points all report much the same conditions, which are likely to prevail until a change of wind distributes the packed ice.

The amicable adjustment of the mining rates in the central States does not show that the Maryland operators and those in Central Pennsylvania may not have trouble. However, the United Mine Workers after their defeat last fall are not likely to make trouble in the Georges Creek field, and the outlook is that there will be no serious trouble in the Clearfield District. The mines are curtailing output, and the miners probably realize that they will be fortunate under present circumstances if wages are maintained.

Trade in the far East shows but few inquiries, although the demand is a trifle better than last week. Along Long Island Sound there has been most improvement; consumers there had plenty of coal, but the duration of the cold wave has frightened them and they are after further supplies. New York Harbor trade shows some instances of distress from the difficulties due to ice. Demand has improved. All-rail trade continues taking fair amounts of coal; demand is unchanged. Transportation from mines to tide is affected by the weather, but not as much as at first expected. Car supply at the collieries is up to all needs and is regulated by the despatch consignees show in unloading cars at tidewater.

In the coastwise vessel market, vessels just now are scarce at the loading ports, being held by ice at various points along the coast. Coastwise freights in consequence have advanced. Delaware and Chesapeake Bay are both practically closed, though the shifting ice floes occasionally allow a tow to get through. The freight rates asked just now can hardly be considered a criterion of the real vessel market, but represent rather the needs of individual charterers. It is thought that fair rates from Philadelphia, if vessels could be had, would be: Boston, Salem and Portland. 75@80c.; Providence, New Bedford and the Sound, 70@75c. Vessel owners are now asking 70c. from New York Harbor ports to Providence.

For high-grade coals prices remain at regular figures, $2.50 f. o. b. Philadelphia and $2.85 f. o. b. New York Harbor ports. Poorer grades are nominally $2.35@$2.50 f. o. b. New York Harbor ports, but forced sales are made as low as $2.10.

Birmingham, Ala. Feb. 11.

(From Our Special Correspondent.)

The Alabama coal market continues quite active and there is still a good demand for the product. The production is very heavy and the prospects are that there will be a material increase in the near future. The work of forming new coal companies in keeping up in this State and during the past week the De Bardeleben Coal and Coke Company was organized, with Henry F. De Bardeleben as president, W. P. Pinckard vice-president and treasurer, and William A. Jackson as secretary. The capital of this new company is $250,000 and the purpose is to mine coal, ore and other minerals, to quarry rock and stone, manufacture lumber, to operate furnaces, foundries, machine shops, rolling mills, steel mills and by-product works and to manufacture lime and coke and to build and operate a railway. The company will operate extensive coal lands in Tuscaloosa County, on the Warrior River, and it proposes to be in a position to carry much of its product by water to the gulf via Mobile. Other companies are being formed and will shortly take out charter.

During the past week announcement was made of a reduction in miners' wages, because of the condition of the iron market. The rate now received by the miners is 50c. per ton, Pratt Mines basis.

The General Assembly of Alabama, now in session in Montgomery, has under consideration an amendment to the present mining laws. The amendment was offered at the instance of the miners of the State and seeks to compel the mine operators to pay the miners by weight instead of by measure; it requires uniform ventilating apparatus; it requires State mine inspectors to be practical men and stand an examination as is required of mine foremen. There are other conditions in the amendments and the Committee on Mining and Manufacturing in the House of Representatives has already passed favorably on the new bill.

Chicago. Feb. 12.

(From Our Special Correspondent.)

Anthracite Coal.—The looked-for drop in temperature has come, but to the great disappointment of the trade the frigid weather has had but little effect in general business, the wholesale hard coal trade being yet in the dumps. The high price of hard coal has had the effect of driving consumers into the use of soft coal. The circular price remains firm at $5.75 on grate and $6 on egg, stove and chestnut, the latter size of coal being in such demand that orders are turned down, the market being almost bare of it.

Bituminous Coal.—Trade has felt the effects of the colder weather to some extent, the demand being somewhat more varied and the sales rather larger. The weather is not cold enough to clear out the accumulation of soft coal hereabouts to any large extent, but should the cold last a couple of weeks a big hole will have been made into the pile. Prices have taken on some degree of firmness.

Cleveland, O. Feb. 13.

(From Our Special Correspondent.)

There is a stronger feeling in the coal trade, owing to the prevalence of the cold weather. The sales have ben heavier and the mine operators are now experiencing some difficulty in getting cars, although this is not such a serious question as it would be were there a heavier southbound shipment of ore. The railroads are applying what equipment they have at hand and are turning it over as rapidly as possible, but the demands of the trade are testing the capacities of some properties. Ohio coals, exclusive of Massillon, might be quoted as follows: Slack, $1.20, a slight increase; nut, $1.50; run-of-mine, $1.16; three-quarters, $1.80; lump, $2; Massillon lump, $2.60.

The lake shippers believe they see in the charter of an ore vessel some indication of the freights they will have to pay when the season of navigation is opened. The charter for ore at 75c. means a rate of about 35c. or possibly 40c. for coal, but it is altogether possible that these rates will be shaded. Nothing is being done yet toward fixing freights for the season, as no coal has been sold in the Northwest.

Pittsburg. Feb. 13.

(From Our Special Correspondent.)

Coal.—The mining rate has been settled for another year and a threatened strike has been averted. The present scale is to be continued and while the miners made a demand for an advance of 10c. a ton and the operators offered a reduction of 10c. both sides seem to be satisfied with the compromise. It is reported that prices have been cut lately, but the Pittsburg Coal Company, the railroad coal combination, denies that any reductions have been made by that company. It is claimed that the rates fixed on April 1st have been strictly maintained. These rates are $1.45 for 1¼ in. and $1.25 for run-of-mine at the mine. It is more likely that these prices will be advanced than reduced. The alleged cutting, it is said, is being done by independent operators who are endeavoring to secure trade.

Connellsville Coke.—The starting of a number of idle blast furnaces has resulted in a heavy increase in the production of coke. The production last week was 211,899 tons, a gain of 10,732 tons over the previous week. Of the 21,413 ovens in the region 18,168 are active and 3,245 are idle. Furnace coke is still quoted at $1.75 and foundry at $2.35. The shipments last week aggregated 10,351 cars, distributed as follows: To Pittsburg and river tipples, 3,568 cars; to points west of Pittsburg, 4,334 cars; to points east of Connellsville, 2,449 cars. This was an increase of 213 cars compared with the previous week.

San Francisco. Feb. 6.

(From Our Special Correspondent.)

Receipts of coal by water at San Francisco in January were as follows, in short tons:

	1900.	1901.	Changes.
Eastern U. S.	2,387	2,015	D. 372
Oregon	3,800	3,190	D. 610
Washington	52,582	55,195	I. 2,613
Total domestic	58,769	60,400	I. 1,631
British Columbia	43,256	35,838	D. 7,418
Australia	15,219	11,737	D. 3,482
Great Britain	21,352	400	D. 20,952
Total foreign	79,827	47,975	D. 31,852
Totals	138,596	108,375	D. 30,221

The total decrease was 21.7%. The receipts do not include coal from California mines nor from Wyoming and Utah mines by rail. The falling off this year was in foreign coal.

Foreign Coal Markets.

Nothing new has developed in the way of export trade here, though inquiries continue to be received.

Ocean freight rates are easier from the United States, owing to more frequent offering of bottoms. Recently some charters have been booked to the Mediterranean at private terms. West Indian and South American business is receiving more attention. Recent charters include several from Newport News to Rio Janeiro at 16s.@ 16s. 3d ($3.84@$3.90), February-March sailing. A charter is also noted from Cardiff, Wales, to Jamaica at 7s. 6d. ($1.80), which is less than the rate from Baltimore, Norfolk or Newport News, Va.

A correspondent informs us that M. L. Legludic, of No. 24 Boulevard du Port Royal, Paris, France, asks to be put in communication with coal producers in the United States. M. Legludic believes that at the present prices of coal in France and England his house could do considerable business in American coal. Parties desirous of doing an export business would do well to write to the address given.

Messrs. Hull, Blyth & Co., of London and Cardiff, write under date of February 1st that the decline in prices has continued, but very few transactions have taken place. Quotations are: Best Welsh steam coal, $4.44@$4.56; seconds, $4.32; thirds, $4.08; dry coals, $3.84@$3.96; best Monmouthshire, $3.84@$3.96; seconds, $3.60@$3.72; best small steam coal, $1.56@$1.80; seconds, $1.32; other sorts, $1.08.

These prices for Cardiff coals are all f. o. b. Cardiff, Penarth and Barry, while those for Monmouthshire coals are all f. o. b. Newport, exclusive of wharfage, and are for cash in 30 days, less 2½% discount.

In freights the improvement in South American rates has been maintained, but in other directions the tendency is downward. Some rates noted from Cardiff are: Marseilles, $1.60; Genoa and Naples, $1.86; Singapore, $3.84; St. Vincent, $1.80; Buenos Aires, $3.12; Rio Janeiro, $3.60; Santos, $3.96.

SLATE TRADE REVIEW.

New York. Feb. 15.

The list of prices per square for No. 1 slate standard brand f. o. b. t quarries in car-load lots, is given below:

Size, Inches	Monson or Br'ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Chap'n Keyst'ne	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3.50	3.00	3.00	....	5.10	3.00	....	.....
24 x 12	6.60	3.50	3.00	3.00	3.80	5.25	3.00	3.75	.....
22 x 12	6 60	3.50	3.25	3.00	....	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.00	4.00	5.25	3.00	4.00	.....
20 x 12	6 90	3.75	.....	3 00	.....	5.25	3.00	3.75	.....
20 x 11	6.80	....	.....	3 25	....	5.25	3.00	....	.....
20 x 10	6.80	4.25	3.50	3.25	4.00	5.35	3.00	4.25	10.50
18 x 12	6.80	3.75	.....	3.00	.....	5.25	3.00	3.50	.....
18 x 11	7.00	....	....	....	.....	....	3.00	3.75	.....
18 x 10	7.00	4.25	3.50	3.25	4.00	5.35	3.00	4.00	10.50
18 x 9	7.00	4.50	3.50	3.25	4.00	5.35	3.00	4 25	10.50
16 x 12	6.80	3.75	....	3.00	.....	....	2.90	3.50	.....
16 x 10	7.00	4.00	3.50	3.25	4.00	5 25	2.90	4.00	10.50
16 x 9	7.00	4.25	.....	3.25	4 00	5.35	2.90	4.25	10.50
16 x 8	7.00	4.50	3.50	3.25	4.25	5.35	2.90	4.25	10.50
14 x 10	6 60	3.75	3.25	3.00	.....	5 25	2.70	3.75	10.50
14 x 9	6.50	....	....	....	....	....	2.70	3.75	10.50
14 x 8	6 60	3.75	3.25	3.00	4.00	5.10	2.70	4.25	10.50
14 x 7	6.40	3.75	3.25	3.00	3.75	5.10	2.50	4.25	10.50
12 x 10	5.75	....	.. .	....	... .	...	2.50	3.25	.....
12 x 9	5.60	....	.....	....	....	....	2.50	3.25	.....
12 x 8	5.50	3.50	.....	2.85	.....	4 85	2.50	3.50	9.00
12 x 7	5.00	3.25	.....	2.85	3 25	4.85	2.00	3.50	9.00
12 x 6	4.80	3.25	....	2.85	3.25	4.75	2.00	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof

While trade is seasonably quiet, owing to the cold weather, prices are a little firmer.

An encouraging feature of the slate industry is the growing use of electricity. Electric power is found to be more economical in running the quarry pumps and hoisters, and also for operating the saw tables in the mills.

The export market looks more promising, and inquiries from British territory are being received.

IRON MARKET REVIEW.

NEW YORK, Feb. 15, 1901.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Feb. 16, 1900.		Week ending Feb. 15, 1901.		From Jan., '00.	From Jan., '01.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An' racite & Coke.	264	291,825	210	270,550	1,943,893	1,660,990
Charcoal.	32	8,125	31	8,425	53,667	50,048
Totals..	296	299,950	241	278,975	1,997,560	1,711,038

There was an increase of no less than 27,600 tons in the weekly capacity of the active blast furnaces in January, and the production is now at the rate of 14,000,000 tons a year. At the same time stocks of iron unsold were practically the same on February 1st as on January 1st; and 120,000 tons less than they were in October last. This indicates certainly an increase in demand.

This week business is quiet. The whole trade is waiting for the conclusion of the great Carnegie deal, and we shall have practically a waiting market until something more is known of the arrangements which will follow that deal.

It begins to look, however, as though there is a great deal of business in sight for the current year, though we ought to expect a somewhat lower range of prices.

Birmingham, Ala. Feb. 11.

(From Our Special Correspondent.)

The Alabama pig iron market is not in the most active state. There are a number of inquiries being received, but the actual demand and the quotations are not so favorable. The production is a little larger than the demand right now. The shipment on domestic orders is quite steady and in good quantity.

Mr. Don H. Bacon, chairman of the board of directors of the Tennessee Coal, Iron and Railroad Company, who has been in the Birmingham District for the last two weeks investigating the properties and operations of that company, when questioned the latter part of the past week as to the iron market, said there was room for improvement. He said that the general condition was fairly good, though there was a little more iron being produced than the market just now needed. He stated that prices were not very firm.

Purchasers are demanding concessions in prices and in some instances prices are said to have been from 25 to 50c. off. The miners' committee during the past week found the average price of iron, all grades considered, from mottled gray to No. 1 foundry, below the $10 mark, and as a consequence their wages were reduced.

C. E. Buck, of the Attalla Ore Company, has arranged to take hold of Trussville furnace, in Jefferson County, and he has assumed some of the debts of the former company, and is now preparing to put the furnace in blast. Other furnaces will shortly be in condition to go into blast.

The Alabama Consolidated Coal and Iron Company during the past week purchased for $120,000 more than 1,200 acres of ore land near Gadsden, Ala., the properties of the Attalla Ore Mining Company.

The Sloss-Sheffield Steel and Iron Company is doing well with 4 furnaces in operation, and will within a short while have a fifth furnace going. The local demand is not very strong. The steel trade is more active than the pig iron business. The steel plant at Ensley is working steadily. There is a fairly good demand for finished iron and steel and the rolling mills in this district are working steadily.

The Alabama Steel and Wire Company has put in its answer in detail to the complaint of the American Steel and Wire Company, which was made in the United States court here several weeks since. The American Company allege infringements of patents in the manufacture of wire. In the answer of the Alabama Company it is denied that any infringement has taken place or that any damage has been done the American Company. The suit will be heard within a few weeks.

The following pig iron quotations are given in this district: No. 1 foundry, $11.50@$12; No. 2 foundry, $10.75@$11.25; No. 3 foundry, $10.50@$11; No. 4 foundry, $10@$10.25; gray forge, $9.50@$9.75; No. 1 soft, $11.50@$12; No. 2 soft, $10.75@$11.25.

Chicago. Feb. 12.

(From Our Special Correspondent.)

Pig Iron.—Business in pig iron has improved to some extent; inquiries are more numerous and include a number for round lots. There have been several good-sized contracts booked, one of 2,500 tons and general business in small lots has been heavier. Contracts made a number of months ago are expiring right along and it is to the renewal of these that the market is taking on better shape. Northern furnaces are strictly maintaining prices, no concessions being made and because of the fact that most of the furnaces are well filled with orders guaranteeing their output for months ahead prices will become firmer. Quotations are: Lake Superior charcoal, $18.50@$19; local coke foundry, No. 1, $15@$15.50; No. 2, $14.50@$15; No. 3, $14@$14.50; local Scotch No. 1, $15@$15.50; Ohio strong softeners, No. 1, $16@$16.25; Southern silvery, according to silicon, $15.50@$16; Southern coke, No. 1, $14.85@$15.35; No. 2, $14.35@$14.85; No. 3, $13.85@$14.35; No. 1 soft, $14.85@$15.35; No. 2 soft, $14.35@$14.85.

Cleveland, O. Feb. 13.

(From Our Special Correspondent.)

Iron Ore.—The first charter for the transportation of ore during the season was made this week. The "Kearsarge" was placed with the Canada Atlantic Transportation Company at a lump sum, which is based on 75c. for the transportation of ore. This is taken as an indication of the outlook for the market for the season. There is a superabundance of tonnage for the movement of all commodities shipped by water this year and in consequence the owners will accept less money for their ore contracts. Nothing has been done so far looking to the establishment of ore prices and it is expected that no action wil be taken for another 30 days.

Pig Iron.—Temporarily the market is dull, the sales being light. No change has been seen in any quotations, but the expectations are that different prices will be quoted soon. The old price of $14 for No. 1 and $13.50 Valley furnace prevail. Basic is quoted at $13.50 and off basic at $12.50, with busines light. Bessemer stands at approximately $12.75, with but few sales reported.

Finished Material.—There is a better tone generally to the market. Bars, which showed up weaker last week, are now in better shape, the decline having stopped. It is said that the Valley mills are willing to shade 1.35c. Clevland a little, but it is expected to go no further than that, Pittsburg mills holding firm for 1.25c. at the plant.

The business in plates has been light, but the price holds at 1.40c., Pittsburg. Deliveries are slower now than they have been, due to the fact that all of the plants have been taking on orders freely. Rails hold firm at $26, with sales amounting to about 35,000 tons this week, which is considered light. The market has heard inquiries for 3,000 tons for export. A new building is to be erected soon for which steel was asked this week. The order calls for 3,000 tons and it is expected that it will be closed soon. Billets are in fair demand only at $19.75.

Old Irons.—The conditions surrounding this trade have not changed. The market here shares the general dullness. The prices hold firm as quoted heretofore. They are: Heavy plate, $13.50; cast iron borings, $5.75; old car wheels, $17.50; stove plate, $10; cast scrap, $13; No. 1 wrought, $15.

Philadelphia, Pa. Feb. 14.

(From Our Special Correspondent.)

Pig Iron.—For all practical purposes all products might be appropriately classed this week under one heading. The boiling of the Carnegie pot has attracted all eyes and ears. People are holding back because they are not in urgent need of pig iron and also because they want the Carnegie deal out of the way. While very few believe there will be any change produced by the sale on prices or demand there is a very general desire to see the thing settled. Our foundrymen all say they expect to buy a good deal of material soon, but just at present they are in no mood for buying more than the odd lots they happen to need. The first moveemnt of magnitude will probably be in steel irons. Bottom quotations may be safely given at $16 for No. 1 X foundry; $15.50 for No. 2; $15 for No. 2 plain; $14.25 for forge; $14.50 for chilled basic.

Billets.—The New York meeting this week may change prices from $21 for Bessemer and $22 for open hearth, but no rush for material will follow, even should this unwise course be pursued. Patient inquiry this week among certain large Eastern consumers reveals the fact that there is a great deal of material wanted, but the opinion of our people is that this is no time to work into manufacturers' hands.

Merchant Bars.—All our mill people whom it is possible to reach think along the same lines as to the course of trade for the next few weeks. Our storekeepers are getting into a better retail trade. The smaller shops all through this territory are cutting up more square and round iron and retail prices remain about the same. There is some shading going on, but it is impossible to get the inside of these transactions. Manufacturers are anxious to put all the business on their books they possibly can at 1.40c. for steel and iron bars.

Sheets.—The peculiarity of this week's business is that the orders are for small lots. Corrugated material has been shaded. Common sheet iron continues to sell best. Galvanized sheets will sell in larger blocks as soon as matters are settled; in fact, the outlook for galvanized has not been better for months. Some quotations from Western mills here quote 75 off.

Pipes and Tubes.—The tube market especially is stronger because of the large amount of business taken by Pittsburg mills. Prices are very strong and a good business is coming in.

Skelp.—A good business is reported by representatives of Eastern skelp mills and the struggle for business is such as to actually weaken prices a little when there is not the slightest occasion.

Merchant Steel.—Agents report mills as well sold up, but they have not sent in business of any account this week. The average consumption is as heavy as ever, but less buying is heard of. Prices do not show any fluctuations in this market, though it is said desirable orders from large consumers have slipped in at less than quoted rates in other markets.

Plates.—All the conditions surrounding the plate industry are such as to preclude any reduction. The larger buyers, while keeping covered as fast as new work comes in, are not worried over an upward move, which our manufacturers sometimes argue will come. Quarter-inch plate is 1.55c.; universals, 1.55c.; flange, 1.65@1.70c.

Structural Material.—Our people are not borrowing any trouble over the effect of the possible marking up of billets or other raw material. Large contractors who expect to have orders to place about March are in no hurry to place them. Representatives say that there is enough work in sight to keep mills busy and prices up. It is also said, by what authority does not appear, that if the Morgan interests secure the Carnegie interests there will be a rearrangement of lake craft that will involve the construction of considerable new tonnage. Angles are 1.65; beams and channels, 1.70.

Steel Rails.—The demand for girder rails is better and the expectation is that a good deal of business will soon be given out. Standard sections, it is again given out, are to be advanced.

Scrap.—The call for scrap is getting louder for certain kinds, the supply of which is exhausted. Railroad scrap has no chance to reach the open market and is quoted normally at $18@$19. Heavy steel scrap is badly wanted and if all right will bring $16. Old steel rails bring $16; old iron rails, $18@$19; some cast borings sold at $8, and machinery cast at $14. The larger scrap dealers have exhausted large supplies.

Pittsburg. Feb. 13.

(From Our Special Correspondent.)

The feature of the iron and steel market this week is an advance in the price of Bessemer pig iron and a still higher rate is indicated within another week. Several sales were made at $13, Valley furnaces, and it is a question if any more can be secured at that price. Increased prices of pig iron were not expected until the rates for ore for the year had been fixed. The ore producers have delayed getting together for the purpose of arranging prices and it is intimated that they are waiting for pig iron prices to go up. The ore interests evidently believe that a large business is to be done this year and are in no hurry to fix prices. Three Valley furnaces, the Hannah, Alice and Claire, were put in blast this week and several others will likely be started before the end of the month. There is not much doing in foundry iron, and gray forge is unusually quiet. There were but few transactions in the steel market this week. The demand is good but none of the interests seems anxious to sell. The only producers of sheet and tin plate bars here appear to be out of the market except to the American Sheet Steel Company and the American Tin Plate Company. No sales to consumers outside of these two combinations have been recorded for several weeks. Bessemer steel billets command a much higher price than that fixed by the pool, but few sales were made. The main topic of conversation in steel circles is the big deal which contemplates the absorption of the Carnegie Company by a syndicate headed by J. Pierpont Morgan and the rumors of a great consolidation of steel interests. Everyone here seems to be in the dark and no definite information whatever can be obtained. The negotiations are being conducted with the greatest secrecy. President C. M. Schwab, of the Carnegie Company, returned to the city from New York on Sunday and was at his office early the next morning. Here an all-day meeting with the officials of the company was held and in the evening Mr. Schwab departed for New York. All he could be induced to say in regard to the pending deal was that no official statement will be given out for a few days. There are all kinds of rumors, but none appear to have any reliable foundation. Owing to the attention President Schwab was required to give to the steel deal the scheduled meetings of the rail and billet pools were side-tracked last week and these interests may not get together before next week. The steel plate manufacturers met, but made no change in prices.

Pig Iron.—The sales of Bessemer pig iron this week aggregated 5,000 tons, the price being $13, Valley furnaces. One contract was for 3,000 tons and the balance was for 200 and 300-ton lots. This iron is for delivery before April 1st. There was but little foundry iron sold and prices are a shade lower than last week. No. 2 is quoted at $13.75@$14.25. About 1,000 tons of gray forge were sold at $13.15@$13.25.

Steel.—Only a few small lots of Bessemer steel billets were sold this week and the price obtained was from 50c. to $1 above the pool price of $19.75, Pittsburg. The demand for tank plates and steel bars continues good. Prices are unchanged, tank plate being quoted at 1.40c. and steel bars at 1.25c.

Sheets.—There is no change in the sheet market. The demand seems to be improving, but the American Sheet Steel Company has not put any of its idle plants in operation. The price of No. 28 is firm at 2.95@3c. and galvanized sheets are quoted at 75, and 70, 10 and 5% off, with no allowance for freight.

Ferro-manganese.—The demand is good and the price is firm at $62.50.

New York. Feb. 15.

The local iron market is generally quiet and unchanged. In foreign trade we note shipments of $82,000 worth of locomotives, $50,000 worth of machinery and $25,000 worth of finished iron to Japan; $35,000 worth of steel rails and railroad material to Brazil; and $38,000 worth of steel rails, $19,000 worth of structural material and $15,000 of manufactured iron to South Africa.

Pig Iron.—Buying shows little improvement, if any, and prices are no firmer. We quote for Northern iron tidewater delivery: No. 1 X foundry, $16.25@$17.25; No. 2 X, $15.50@$16; No. 2 plain, $14.75@$15.25; gray forge, $14.50@$14.75. For Southern irons on dock, New York, No. 1 foundry, $15.25@$15.75; No. 2, $14.50@$15; No. 3, $14.25 @$14.50; No. 4, $13.50@$14; No. 1 soft, $15.25@ $15.75; No. 2, $14.50@$15.

Bar Iron and Steel.—Demand is fairly good. We continue to quote common bars at 1.35c. for large lots on dock; refined bars, 1.45c.; soft steel bars, 1.40c.

Plates.—There is no change in demand or prices. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.65c.; flange, 1.75c.; marine, 1.85c.; firebox, 1.85c.; universal, 1.60c.

Steel Rails and Rail Fastenings.—Buying has been light. Standard sections are still quoted at $26 at Eastern mills; light rails at $26@$30, according to weight. Spikes are 1.55c.; splice bars, 1.40c.; bolts, 2.10@2.25c.

Structural Materials.—Demand is rather slack. Prices are firm. We continue to quote at tidewater: Beams, 1.65c.; channels, 1.65c.; angles, 1.30c.; tees, 1.70c.; zees, 1.65c.

METAL MARKET.

New York. Feb. 15.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in January and year.

Metal.	January.		Year.	
	1900.	1901.	1900.	1901.
GOLD.				
Exports	$5,691,290	$8,221,159	$5,691,290	$8,221,159
Imports	1,992,692	4,161,012	1,992,692	4,161,012
Excess	E. $3,698,598	E. $4,060,147	E. $3,698,598	E. $4,060,147
SILVER.				
Exports	4,599,199	4,790,239	4,599,199	4,790,239
Imports	2,174,573	3,169,034	2,174,573	3,169,034
Excess	E. $2,424 626	E. $1,621,205	E. $2,424,626	E. $1,621,205

This statement covers the imports and exports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending Feburary 14th, 1901, and for years from January 1st, 1901, 1900, 1899 and 1898.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$140,000	$12,580	$459.545	$21,884	E. $565,081
1901..	9,019,690	314,837	4,305.349	530,661	E. 12,449,541
1900..	1,962,395	670,321	4,996,625	475,159	E. 5,813,520
1899..	374,831	3,650,678	4,0 9,629	416,229	E. 368,555
1898..	3,371,475	3,939,866	6,486,776	445,607	E. 5,472,689

The United States Assay Office in New York reports the total receipts of silver at 56,000 oz. for the week. This makes a total of 516,000 oz. from January 1st.

Exports of gold were to the West Indies; imports came from various ports. The silver exported went chiefly to London; that imported was from the West Indies and Mexico.

Average Prices of Silver per oz. Troy.

Month.	1901.		1900.		1899.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	28.97	63.12	27.30	59.30	27.42	59.36
February..	.....	.....	27.49	59 76	27.44	59.42
March.....	.....	.....	27.59	59.81	27.48	59.64
April.....	.....	.....	27.41	59.59	27.65	60.10
May.....	.....	.....	27.56	59.96	28.15	61.23
June.....	.....	.....	27.81	60.42	27.77	60.43
July.....	.....	.....	28.23	61.25	27.71	60.26
August....	.....	.....	28.13	61.14	27.62	60.00
September	.....	.....	28.85	62.63	27.15	58.89
October ..	.....	.....	29.58	63.83	26.70	57.98
November	.....	.....	29.66	64.04	27 02	58.67
December.	.....	.....	29.68	64.14	27.21	58-99
Year....	.....	.....	28.17	61.21	27.44	59.58

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1901.	1900.	1901.	1900.	1901.	1900.	1901	1900.
Jan.....	16.25	15.58	26.51	27.07	4.35	4.68	4.13	4.65
Feb.....	.....	15.78	.....	30.58	.....	4.675	.....	4.64
March...	.....	16.29	.....	32.90	.....	4.675	.....	4.60
April....	.....	16.76	.....	30.90	.....	4.675	.....	4.71
May.....	.....	16.34	.....	29.37	.....	4.181	.....	4.53
June.....	.....	15.75	.....	30.50	.....	3.901	.....	4.29
July.....	.....	15.97	.....	33.10	.....	4.030	.....	4.28
August..	.....	16.35	.....	31.28	.....	4.250	.....	4.17
Sept.....	.....	16.44	.....	29.42	.....	4.350	.....	4.11
October..	.....	16.37	.....	28.54	.....	4.350	.....	4.15
Nov.....	.....	16.40	.....	28.25	.....	4.350	.....	4.29
Dec.....	.....	16.31	.....	26.94	.....	4.350	.....	4.25
Year.....	.....	16.19	.....	29.90	.....	4.37	.....	4.39

The prices given in the table for copper are the averages for electrolytic copper. The average price for Lake copper for the year 1900 was 16.52c.; for the month of January, 1901, it was 16.77c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47½	$ .50
Peruvian soles and Chilean pesos	.43½	.46½
Victoria sovereigns	4.85	4.88
Twenty francs	3.84	3.88
Twenty marks	4.73	4.78
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

Business generally is quieter, though the speculative markets continue to be boomed on reports of great railroad and industrial combinations. There have been no more exports of gold, and the outward movement has closed for the present.

The silver market shows no special features. Moderate buying on account of the Indian Government is at present its chief support. It is

Imports and Exports of Metals.

Port.	Week, Feb. 13.		Year 1901.	
	Expts.	Impts.	Expts.	Impts.
New York.				
(N. Y. Metal Exchange.)				
Aluminum.....long tons	1	.....	16	15
Antimony ore... " "	.....	.....	.....	39
" regulus.. " "	.....	15	19	128
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine..... " "	1,050	25	10,560	1,763
" matte.. " "	14	.....	266	22
" ore..... " "	.....	.....	.....	6,310
" ash..... " "	.....	.....	.....	.....
Iron ore ..... " "	.....	.....	.....	.....
" pig, bar, rod " "	112	153	3,828	155
" pipe..... " "	387	.....	2,960	.....
" plates, sheets " "	.....	.....	149	.....
Lead ..... " "	1,200	50	10,003	6,895
" ore.. ..... " "	.....	.....	.....	.....
" dross ..... " "	.....	.....	.....	.....
Manganese, ore. " "	.....	.....	.....	1,110
Metals, old, scrap " "	18	6	420	202
Composition... " "	245	.....	2,359	.....
Nails. ..... " "	51	.....	1,156	....
Nickel ..... " "	15	10	245	22
" ore, matte " "	.....	.....	.....	3,600
Railr'd material. " "	172	.....	5,422	255
Rails, old..... " "	.....	.....	.....	.....
Steel bars, plates " "	2,183	246	12,541	808
" rails..... " "	392	.....	7,983	.....
" wire..... " "	232	.....	4,357	.....
Tin ..... " "	180	.....	180	3,067
" and black plates"	.....	1,912	.....	5,261
" dross..... " "	.....	.....	.....	.....
Zinc..... " "	6	.....	7	50
" dross..... " "	.....	.....	123	.....
" ashes, skim " "	25	.....	79	.....
" ore..... " "	.....	.....	1,959	.....
Baltimore.				
(Special Correspondence).				
Antimony.. .....long tons	.....	.....	.....	.....
Chrome ore..... " "	.....	.....	.....	.....
Copper, fine..... " "	470	.....	2,747	753
Ferro-manganese " "	.....	.....	.....	.....
Iron pig, bar, etc. " "	.....	132	1,145	1,518
" ore..... " "	.....	4,294	.....	28,420
Manganese ore.. " "	.....	.....	.....	3,250
Metals, old & Rails"	.....	.....	.....	.....
Nails ..... " "	.....	.....	97	.....
Pipe, iron & steel " "	48	.....	350	.....
Silicon ..... " "	.....	.....	.....	.....
Spiegeleisen..... " "	.....	.....	.....	.....
Steel, bars, etc.. " "	860	.....	6,271	67
" wire ..... " "	.....	.....	534	14
" rails..... " "	1,800	.....	15,959	.....
Tin..... " "	.....	.....	.....	50
" and blackplates" "	.....	.....	.....	97
Zinc..... " "	.....	.....	.....	.....
Philadelphia.				
(Week ending Feb. 9).				
Copper, fine.....long tons	.....	.....	.....	.....
Iron, pig..... " "	.....	.....	39	525
" ore..... " "	.....	5,800	.....	23,990
Metals, old ..... " "	.....	.....	11	.....
" composition " "	.....	.....	7	.....
Railroad material " "	.....	.....	21	.....
Steel, bars, etc . " "	.....	.....	2,291	.....
" rails ..... " "	.....	.....	202	.....
Tin..... " "	.....	.....	.....	115
" and black plates" "	.....	.....	.....	2
Zinc..... " "	.....	.....	.....	.....
" ore..... " "	.....	.....	2,061	.....
" dross ..... " "	.....	.....	48	.....
" ash ..... " "	.....	.....	6	.....

Total United States.

Articles.	Year, 1900.		Year, 1899.	
	Expts.	Impts.	Expts.	Impts.
Antimony.....long tons	11	1,622	8	1,411
" ore.... " "	.....	2,695	.....	1,778
Copper, in all forms..... " "	159,564	85,042	118,914	63,745
Iron, pig & bar.. " "	300,321	71,357	240,211	60,184
" ore..... " "	51,460	897,792	40,665	674,082
Iron & steel plates " "	55,015	5,143	56,980	7.044
Iron & steel rails " "	361,619	1,448	277,714	2,134
" " wire " "	78,041	1,848	116.337	2,363
Lead, in all forms " "	88,934	100,153	67,667	86,106
Manganese ore and oxide..... " "	3	256,252	25	188,349
Nickel " & matte " "	2,621	5,393	2,234	4,071
Nails, cut..... " "	11,163	.....	9,974	.....
" wire..... " "	27,404	.....	33,517	.....
Quicksilver..... " "	347	.....	564	.....
Steel, billets, rods, etc..... " "	199,548	33,801	72,913	30,565
Tin..... " "	495	30 834	446	31,807
" & black plates " "	737	60,386	302	58,915
Zinc..... " "	20,030	899	6,046	1,333
" ore..... " "	37,555	.....	24,197	.....

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. on pigs and bars, 2c. on sheets, etc. Copper, tin and platinum are free of duty.

thought in well-informed circles that this Government buying will continue for some time.

The statement of the United States Treasury on Wednesday, February 13th, shows balances in excess of outstanding certificates as below, compared with the corresponding day last week:

	Feb. 6.	Feb. 13.	Changes.
Gold	$70,175,097	$75,788,964	I. $5,613,867
Silver	19,024,022	20,621,149	I. 1,597,127
Legal tenders	12,987,740	13,190,903	I. 203,163
Treas. notes, etc.	200,426	113,195	D. 87,231
Totals	$102,387,285	$109,714,211	I. $7,326,926

Treasury deposits with national banks amounted to $98,907,635, showing a decrease of $122, as compared with the corresponding day last week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending February 9th, gives the following totals, comparison being made with the corresponding week in 1900 and 1899:

	1899.	1900.	1901.
Loans and discounts	$750,043,300	$720,735,000	$895,289,400
Deposits	880,059,100	814,786,900	994,593,900
Circulation	14,533,600	17,026,200	31,231,900
Reserve:			
Specie	198,501,300	165,029,600	195,890,400
Legal tenders	59,025,300	66,564,700	73,120,700
Total reserve	$257,526,600	$231,594,300	$269,011,100
Legal requirements	232,014,775	203,696,725	248,648,475
Balance, surplus	$35,511,825	$27,897,575	$20,362,625

Changes for the week, this year, were increases of $23,481,200 in loans and discounts, $24,676,400 in deposits, and $3,065,400 in specie; decreases of $87,200 in circulation, $1,372,500 in legal tenders, and $4,476,200 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

Banks.	1900. Gold.	1900. Silver.	1901. Gold.	1901. Silver.
N.Y. Ass'd	$165,029,600	.....	$195,890,400	.....
England	177,576,225	.....	163,137,425	.....
France	380,013,585	$228,751,55[illegible]	475,977,175	$219,615,805
Germany	134,485,000	69,280,000	141,310,000	72,975,000
Spain	68,000,000	74,100,000	70,005,000	82,890,000
Neth'l'ds	28,135,000	30,005,000	25,140,000	28,350,000
Belgium	15,085,000	7,540,000	14,570,000	7,285,000
Italy	77,060,000	7,530,000	77,720,000	9,205,000
Russia	423,970,000	29,375,000	368,850,000	32,965,000

The returns of the Associated Banks of New York are of date of February 9th and the others are of date February 8th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold. The Bank of England reports gold only.

Specie shipments from San Francisco by water in January were light, the figures being as below:

	Gold.	Silver.	Totals.
Hongkong	$3,999	$275,712	$279,711
New York	350,876	7,000	357,876
Totals	$354,875	$282,712	$637,587
Totals, 1900	341,433	596,254	937,687

The gold shipped this year was all in gold coin. The silver included $7,000 United States silver coin; $3,765 in South American coin; $202,187 in Mexican dollars, and $69,760 in silver bars.

The foreign merchandise trade of the United States for the month of January is reported by the Bureau of Statistics of the Treasury Department as below:

	1900.	1901.
Exports	$117,597,148	$136,317,354
Imports	75,897,102	69,100,194
Excess, exports	$41,700,046	$67,217,160
Add excess of exports, gold		4,060,147
Add excess of exports, silver		1,621,205
Total balance		$72,898,512

The gold and silver movement in detail will be found in the usual place, at the head of this column.

Indian exchange is easier, Council bills having sold in London at 15.98d. per rupee. Purchases of silver for Indian account seem to have ceased temporarily.

Shipments of silver from London to the East for the year up to January 31st, 1901, are reported by Messrs. Pixley & Abell's circular as follows:

	1900.	1901.	Changes.
India	£437,727	£815,900	I. £378,173
China	71,229	41,375	D. 26,854
The Straits	.....	.....	.....
Totals	£508,956	£860,275	I. £351,319

Arrivals for the week this year were £230,000 in bar silver from New York, £66,000 from the West Indies and £2,000 from Australia; total, £298,000. Shipments were £198,000 in bar silver to Calcutta and £5,000 to Bombay; total, £203,000. There were no exports to the Straits so far this year.

Other Metals.

Daily Prices of Metals in New York.

February.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, Pence.	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic ₩ lb.	Copper. London, £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter. N.Y. cts. ₩ lb.	Spelter. St. L. cts. ₩ lb.
9	4.87¾	61½	28 1/16	16⅞	16⅝	....	26¼	4.32½@4.37½	3.95	3.75
11	4.88	61½	28⅛	16⅞	16⅝	71¾	26⅛	4.32½@4.37½	4.00	3.80
12	.....	....	28 1/16	.....	.....	71¾	.....	.....	.....	.....
13	4.87¾	60⅜	28	16⅞@17	16⅝	71⅝	26⅛	4.32½@4.37½	4.05	3.85
14	4.87¾	60¾	27 15/16	16⅞@17	16⅝	71¼	26¾	4.32½@4.37½	4.07½	3.87½
15	4.87½	61	28⅛	16⅞@17	16⅝	71¼	27¾	4.32½@4.37½	4.05	3.87½

London quotations are per long ton (2,240 lbs.) standard copper which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market remains quiet but strong. Consumption is very good and manufacturers are reported to have booked a good volume of future business. The buying this week has been somewhat interfered with by the holiday and has not been quite as aggressive as earlier in the month, but it is said that a great deal of copper is still required for early deliveries. The European market continues rather depressed. We quote Lake at 16⅞@17c.; electrolytic in cakes, wirebars and ingots at 16⅝c., in cathodes at 16⅛c.; casting copper at 16¼c.

The market for standard copper in London, which closed last week at £71 5s. for spot, £71 16s. 3d. for three months, opened 10s. higher. On Wednesday, however, it declined 7s. 6d. and closes at £71 5s. for spot, £71 17s. 6d. for three months.

Refined and manufactured sorts we quote: English tough, £74 15s.@£75 15s.; best selected, £77 10s.@£78 10s.; strong sheets, £86; India sheets, £82@£83; yellow metal, 6⅞d.

Copper production as reported by Mr. John Stanton, who acts as statistician for the companies, was as follows for the month of January, stated in long tons (2,240 lbs.) of fine copper:

Production:	1899.	1900.	1901.
U. S., reporting mines	16,774	17,613	19,279
U. S., outside sources	1,850	3,400	3,400
Total United States	18,624	21,013	22,679
Foreign reporting mines	5,852	5,868	5,910
Totals	24,476	26,881	28,589
United States exports	9,204	14,035	10,003

The United States production showed an increase over 1900 of 1,666 tons, or 9.4%, all from the reporting mines. Exports were comparatively light, being 4,032 tons less than in January of last year.

Tin.—The market here has been very quiet and business has been of a retail character. Supplies on this side are large and with the high London market for spot tin, it has been found profitable to re-export parcels of tin that are now arriving. This should soon have the effect of strengthening the position on this side and reducing the wide difference in Europe between spot and future deliveries. At the close we quote spot tin at 27¾c., with futures neglected.

The London market, which closed last week at £122 2s. 6d. for spot, £117 7s. 6d. for three months, opened 10s. higher. On Tuesday it advanced further 10s., but on Wednesday declined about £1. It closes at £122 12s. 6d. for spot, £118 for three months.

Lead.—The market is without change. A good business is being done from day to day at the last prices, 4.17½@4.32½c. St. Louis, 4.32½@4.37½c. New York.

The foreign market has again declined, Spanish lead being quoted at £14 15s.@£14 17s. 6d., English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is firm and fairly active. Missouri brands are now selling at 4.20c., and at this price there appears to be more buyers than sellers. Argentiferous lead is unchanged at 4.32½c.

Spelter.—The market has taken a sudden turn upward in consequence of the decrease in the production and the good consumptive demand. Smelters, generally, found themselves more heavily sold than they anticipated and have raised their prices. St. Louis is now quoted at 3⅞c., New York at 4.05c.

The foreign market is quiet at £17 12s. 6d. for good ordinaries, 5s. higher for specials.

Antimony is without change. We quote Cookson's at 10c.; Hallett's at 9@9¼c.; Hungarian at 8½@8¾c.; Italian at 8¾c.; U. S. Star at 8¾@9c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption continues good and prices are strong. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York. In London a recent quotation gives 75s. per ounce, unmanufactured, and 77s. 6d.@80s. for crucibles, etc. This is very nearly on a parity with New York prices.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram.

Quicksilver.—The price is a little easier in New York, and some selling is reported at $49@$50 per flask for large lots, with $1 higher for small orders. San Francisco quotations are 50c. lower, $47.50@$48 for domestic orders, $43@$43.50 for export. The London price is unchanged at £9 2s. 6d. per flask.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

Aluminum.	Per lb.		Per lb
No. 1, 99% ingots	33@37c.	Ferro-Titanium (20%)	$1.00
No. 2, 90% ingots	.31@34c.	Ferro tungsten (37%)	.32c
Rolled sheets	.42c. up	Magnesium	$2.75@3
Alum.-bronze	.20@23c.	Manganese (over 99%)	$1.00
Nickel-alum	.33@39c.	Mangan'e Cop (20% Mn)	.32c.
Bismuth	$2.25	Mangan s Cop (30% Mn)	.38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper red oxide	.50c.	Phosphorus	.50c.
Ferro-Molyb'um (50%)	$1.00	American	.70c.
Ferro-Titanium (10%)	.90c.	Tungsten (Best)	.78c.

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

The old officers and board of directors of the Maryland Steel Company were re-elected at the annual meeting of the stockholders of the company held at Sparrows Point this week. The officers are: President, F. W. Wood; secretary and treasurer, Edmund N. Smith. Board of directors, F. W. Wood, R. K. Wood, E. C. Felton, L. S. Bent and W. S. Franklin.

A dispatch from Tien-tsin, China, February 14th, says: "The Chinese Engineering and Mining Company has been transformed into a limited liability company with British and Continental capital to the amount of £1,000,000. The new organization acquires the Hai-Ping coalfields, a fleet of steamers, wharves at Tien-Tsin, Tong-Ku, Hong Kong and Canton and interests in the railways. The capital will be fully subscribed, the transfer taking place February 28th."

The Maryland Granite Company, of Baltimore, has just been incorporated with a capital stock of $100,000, which will be increased at once to $200,000 by the issue of $100,000 preferred stock. The incorporators of the new company are W. T. Stillwell, president of the Structural Iron and Steel Company; William H. Evans, president Evans Marble Company; John Howard Herrick, stone dealer, Baltimore City; George R. Gaither, attorney, and Frederick Snare, president Snare & Triest Engineering Company, of New York City. The company recently purchased the Gault granite quarries, located at Guilford, Howard County, in Maryland, together with what is known as the Gary Cotton Mills property, including its water rights on the Patuxent River, and the adjoining Lohman farm and Earp quarry properties, aggregating in all about 200 acres.

A special dispatch from Charleston, S. C., to the Boston "Transcript" says: "The Virginia-Carolina Chemical Company, which controls the phosphate business of Charleston, will have competition in the business. At a meeting of the stockholders of the Charleston Mining and Manufacturing Company in this city the company decided to extend its business to the manufacture of acid phosphates. A $1,000,000 plant will be erected. To meet this outlay the stockholders recently authorized the issue of $1,000,000 in bonds, covered by a mortgage of the franchises and property of the company in South Carolina. For several years the Charleston Mining Company has confined its operations exclusively to the digging of phosphate rock, selling the rock to the Virginia-Carolina Chemical Company, but now that the company has determined to manufacture fertilizer it will consume the entire output of the rock.

"The move by the Charleston Mining Company has taken the Virginia-Carolina Chemical people by surprise, and the phosphate situation in Charleston will be changed."

(From Our Special Correspondent.)

Pittsburg, Pa., February 15th.—The Carnegie Company is negotiating with the Bessemer Furnace Association for 25,000 tons of Bessemer pig iron. The deal will likely be closed to-day or to-morrow. The price has not been fixed, but it is reliably stated that it will be $13.25, Valley furnaces. This order is in addition to the 150,000 tons placed last month at $12.50, Valley furnaces. By this contract the price of Bessemer pig iron for delivery at Pittsburg for the first quarter is practically fixed at $14.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 224.)

New York. Feb. 15.

Heavy Chemicals.—Domestic makers have little to sell, owing to contracts already in hand. The spot market is practically controlled by jobbers who are selling below maker's quotations. Bleaching powder made by American works is under contract, but the output is yet too small to satisfy the larger consumers this year. Quotations by first hands are unchanged as below.

We quote per 100 lbs. as follows: Domestic soda ash in bulk is worth 2¼c. per 100 lbs. less than quotations below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%	80@82½	....	85@87½
" 48%	82½@85	....	.....
Caustic Soda, high test	$1.80@$1.85	.....	1.85@1.87½
" powd. 60%	.....	2.75	.....
" 70@74%	.....	2.85	.....
" 98%	....	3 25	3.75@4.00
Sal Soda	50	60	65
" conc.	1.12½@1.75	....	1.75
Bicarb. Soda	1.12½@1.25	.....	1.37½@1.75
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime	.....	....	2.00@2.10
" other br'nds	....	....	1.80@1.95
Chl. Pot cryst	....	8.25@8.50	10.00@10.25
" powd.	....	8.50@8.75	10.25@10.50

Prussiate of Soda.—Weaker at 12@13c. per lb., owing to forced sales.

Sal Ammoniac.—Lump is weaker at 9c. per lb.

Barium Chloride.—Contracts are quoted at $1.55@$1.60 per 100 lbs., while immediate shipment orders are taken at $1.67½@$1.76 per 100 lbs.

Emery Ore.—Increased consumption. New York imports this week aggregated 1,425 tons from Smyrna, Asia Minor. Prices ex-ship New York range from $22 to $30 per long ton, as to quality and quantity.

Magnesite.—Bricks for furnace linings are in better demand. Crude magnesite for other purposes is improving. Imports at New York this week aggregated 1,926 tons from Fiume, Austria. Prices are unchanged as quoted in our wholesale list on another page.

Acids.—The proposed consolidation of the General Chemical Company and the New Jersey Zinc Company has greatly interested the trade and promises to maintain sulphuric acid prices in the Eastern markets. The Grasselli Chemical Company, which is operating independently of the General Chemical Company, has acquired the Standard Acid Company, of Buffalo and North Tonawanda, N. Y. Thus the acid trade is becoming more and more centralized, and with economy in operating the plants and in the method of distributing the product, there should not be any advance in market prices so long as the raw material can be contracted for at present prices. Blue vitriol is in better consumptive demand, and shipments abroad of late have been large.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No 8	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol	5.00@5.25	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75
Aqua Fortis, 40°	4.12½	Oxalic	5.75@6.00
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 15°.	1.20	Sulphuric, 60°	1.05
Muriatic, 20°.	1.35	" bulk 50° ton	14.00
Muriatic 22°	1.50		

Brimstone.—Quiet. The Spanish steamer "Ollargan," 1,450 tons, has been chartered to carry sulphur from Girgenti or Licata, Sicily, to New York at 7s. 6d. ($1.80) February sailing. Spot best unmixed seconds are quoted $22@$22.50 per long ton and shipments at $21.25@$21.50. Best thirds are $2 less.

Pyrites.—Last Saturday Baltimore imported 4 294 tons of Spanish iron pyrites. No arrivals at New York this week. Business is on contract chiefly. The Norwegian steamer "Lonstakken," 2,002 tons, has been chartered from Huelva to New York, Philadelphia, or Baltimore at 9s. ($2.16), February sailing. We quote as follows: Mineral City, Va., lump ore (basis 45%), $4.90 per long ton, and fines $4.50. Charlemont, Mass., lump, $5.50 and fines $5. Spanish pyrites, 12s. delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46@51½% of sulphur; American from 42@44%.

Fertilizing Chemicals.—Quiet. Quotations are: Sulphate of ammonia gas liquor, $2.77½ per 100 lbs. on spot and $2.82½@$2.85 for this and next month's shipment; high-grade blood, $2.25@$2.30 per unit, f. o. b. Chicago; tankage, 9 and 20, $2.10 and 10c. per unit, f. o. b. Chicago; Calcutta bone-meal, $24 per ton for best grades and $20 for other sorts; domestic steamed ground bone, $18.50@$19 per ton, as to purity; fish scrap, dried, $22@$23 per ton at factory; acid phosphate, high grade, 60@65c. per unit f. o. b. works. The agents of the German Kali Works have announced new contract prices as follows: Muriate of potash, 80@85%, $1.80 per 100 lbs.; muriate of potash, 95%, $1.83; sulphate of potash, 90%, $2.08; sulphate of potash, 96%, $2.11 per 100 lbs.; double manure salt, 48@53%, $1.09 per 100 lbs.; kainit, 12.4% potash, $8.80 per ton at port of shipment, and $9.05 ex-vessel at port of importation; sylvinit, 38@39c. per unit of sulphate of potash; manure salt, 20% actual potash, 62@64c. per 100 lbs. These prices are all for shipments to New York, Boston or Philadelphia, and are for contracts placed prior to March 1st, 1900, after which an additional charge of 2@3c. per 100 lbs. will be made.

Nitrate of Soda.—Quiet, but firm. Spot sold at $1.81¼@$1.82½ per 100 lbs., while shipments are quoted up to $1.85, according to position. The "Falls of Keltic" arrived with 36,690 bags, for Norfolk, Va., and also "Progress," with 13,864 bags, for Savannah. Expected arrivals this month are "Tugela," with 39,400 bags; "Blaamanden," 34,610 bags; "Cacique," 29,800 bags; "Powderhami," 27,500 bags; "Queen Margaret," 22,000 bags; "Queen Louise," 19,260 bags, and "Glenelg," 3,750 bags; total, 176,260 bags. The Santiago Nitrate Company has paid a quarterly dividend of 5s. per share, being at the rate of 20% per annum.

Messrs. Jackson Brothers, of Valparaiso, Chile, write us under date of December 29th as follows: A rapid rise in prices, especially for near deliveries, has been experienced, owing partly to the probable scarcity of offerings for the early months of 1901; the stocks on December 31st are expected to be far below the calculated figure of 7,000,000 qtls., and unless the Directory of the Combination decide during the second fortnight of January to allow all or part of the January-February production to be shipped before April 1st, there will certainly be a manifest shortage of the article. The ordinary quality rose from 5s. 9d. to 6s. steamer terms for December-January shipment, and 96% from 6s. 1½d.@6s. 3d. for same delivery; while for July-December, 95%, 6s. is now asked and 6s. 2d. for 96% quality all alongside terms. All these prices are out of proportion to those ruling in consuming markets, but on the whole the coast market has a decided upward tendency, producers maintaining their limits and at the same time offering but reduced quantities of their future make. We quote 95%, January-March, 6s. ½d., and April-December, 5s. 11½d.; for 96%, January-March, 6s. 3½d. is asked and for April-December 6s. 1½d., all ordinary terms; the price of 6s. ½d. with an all-round freight of 25s. stands in 7s. 11¾d. per cwt. net cost and freight without purchasing commission, against quotations of 7s. 8d. Reported sales during the fortnight were 491,000 qtls., and resales, 44,000 qtls.

Phosphates.—In Florida phosphate trade is quiet, as foreign consumers are still holding off buying. The shipments of high-grade rock from Savannah in January amounted to 9,386 tons to Bremen and Rotterdam, showing an increase over last year.

Messrs. Auchincloss Brothers report the shipments of Florida high-grade rock in 1900 as below, comparison being made with the previous years, in long tons of 2,240 lbs.:

Countries.	1900	1899	Changes.
England	20,542	31,789	D. 11,247
Scotland	1,790	9,545	D. 7,755
Ireland	5,852	.....	I. 5,852
Germany and Holland	262,771	331,054	D. 68,283
Belgium	31,639	27,1[illegible]3	D. 5,464
Denmark	2,930	5,475	I. 2,545
Norway and Sweden	8,000	11,938	I. 3,938
France	.....	3,165	D. 3,165
Italy	.....	4,546	D. 4,546
Russia	2,702	1,700	I. 1,002
Austria	5,922	.....	I. 5,922
Spain	2,500	.....	I. 2,500
All other	3,90[illegible]	8,360	D. 4,452
Total tons	348,556	444,675	D. 96,119

In the statement "all other" countries are included Australia with 1,660 tons in 1900 (2,250 tons in 1899) and Hawaii, 2,248 tons in 1900, the first shipment of its kind. The falling off of 22% in the shipments for 1900 was owing partly to high ocean freight rates and the apparent indisposition of superphosphate manufacturers to replenish their stocks at current prices.

Tennessee miners are shipping more rock. It is officially reported that there were 23 mines in 1900 in Maury County; 4 in Hickman County; 1 in Perry County, and 1 in Davidson County, making a total of 29, showing an increase of 14 as compared with 1899. Production, however, has not increased proportionately. In January, 1901, the shipments from Mt. Pleasant amounted to 42,713 long tons, showing a slight falling off from 1900. The exports from Pensacola in January, 1901, aggregated 11,973 tons, against 16,342 tons last year; a decrease of 4,369 tons in 1901. An interesting shipment is now being made from Mt. Pleasant over the Louisville & Nashville Railroad to Pensacola. This consists of 2,000 carloads of phosphate rock, all in one consignment, for Cuba, to be delivered at the rate of 200 car-loads per day. We note a charter of 1,552 tons from Pensacola to La Pallice and Bayonne, France, at 20s. ($4.80), February sailing.

South Carolina miners report easier shipping facilities. The miners have shipped from September 1st, 1900, to February 1st, 1901, a total of 17,203 tons of rock, of which 11,004 tons were for export and 16,199 tons to coastwise consumers.

Reports from abroad state that Algerian and Christmas Island miners are doing a fair business on the continent. Freight rates from Christmas Island are easier at 27s. 6d.@29s. ($6.60@$6.96), according to port of destination. The shipments of phosphates from the Tebessa region in Algeria in 1900 are reported at 241,070 tons, showing a small decrease as compared with 1899. The 1900 shipments were distributed as follows: Constantine Company, 108,730 tons; Dyr Company, 79,630 tons, and Societe Francaise, 52,710 tons.

Phosphates	Per Ton F. o. b.	C. i. f. Un'd Kingdom or European Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$6.50@7.00	7⅝@8d	$11.90@12.48
*Fla. land pebble (68@73%)	3 85@4.00	6⅛@7d	9 10@9.80
*FlaPeace River. (58@63%)	2.50@2.75	6@6½d	7.20@7.80
†Tenn. rock 78%, export.	3.00@3.25	7@7½d	10.92@11.12
†Tenn.....78% domestic.	2.75@3 00	.....	.....
†Tenn.....75% "	2.50@2.75	.....	.....
†Tenn.....72% "	2.25@2.50	.....	.....
‡So. Car. rock, crude	3.75@4.00	.....	.....
§So. Car. rock, dried	4.50	6½d	7.80
Algerian, rock...(63@70%	.....	7@7½d	9.24@9.51
Algerian, rock...(58@63%)	.....	6½@7d	7.80@8.40

* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, Ashley River.

Liverpool. Jan. 29.

(Special Report of Joseph P. Brunner & Co.)

Owing to the universal mourning on account of the death of the Queen, business is partially suspended for the moment, and there is very little going on.

Soda ash is firm all round and while quotations vary according to export market, the range for tierces may be called about as follows: Leblanc ash, 48%, £5 15s.@£6; 58%, £6 2s. 6d.@£6 7s. 6d. per ton net cash. Ammonia ash, 48%, £4 10s.@£4 15s.; 58%, £4 15s.@£5 per ton net cash. Bags, 5s. per ton under price for tierces. Soda crystals are very steady at £3 7s. 6d.@£3 10s. per ton, less 5% for barrels, or 7s. less for bags, with special quotations for certain favored markets. Caustic soda is in moderate request, while prices are fully maintained, the spot quotations being as follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.; 76%, £11@£11 5s. per ton net cash. Bleaching powder is quiet as regards export business, at £7@£7 5s. per ton net cash for hard wood as to market. Chlorate of potash is a shade easier at 3⅝d.@3¾d. per lb. net cash. Bicarb. soda is unchanged and selling at £6 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages, also special terms for certain favored markets. Sulphate of ammonia is dull and easier at about £11@£11 3s. 9d. per ton, less 2½% for good gray 24@25% in double bags f. o. b. here as to quality. Nitrate of soda is in light demand on spot at £8 10s.@£8 15s. per ton, less 2½% for double bags f. o. b. here as to quality.

MINING STOCKS.

Complete quotations will be found on pages 220 and 221 of mining stocks listed and dealt in at:

Boston	Salt Lake.	Montreal.
Colo. Springs.	San Francisco.	London.
Denver.	Spokane.	Mexico.
New York	St. Louis.	Paris.
Philadelphia	Toronto.	

New York. Feb. 15.

Heavy short selling by one of the parties in the American Smelting and Refining Company caused a break from $62 to $55 in the common stock, with a subsequent recovery to $56½. On Monday it is said that over 100,000 shares were thus sold, the object, of course, being to bear the price and worry the opposing party. On Wednesday, however, this stopped and less than 25,000 shares were sold.

The copper shares were uninteresting. Amalgamated lost 2¼ points at $90, and Anaconda 1¾ at $45¼. British Columbia gained $1⅛ at $21⅛. The annual meeting has been postponed to March 14th. Union, of North Carolina, was featureless at $4.25.

Horn Silver, of Utah, after selling at $1.45, slumped gradually to $1.18 as offerings became freer. Brunswick, of California, is lower at 35c. Few Comstock shares were sold.

In the Colorado section Portland, of Cripple Creek, receded from $3.15 to $3. Isabella sold at 75c. Small Hopes, of Leadville, brought 70c., and Iron Silver, 70@68c.

The Columbus & Hocking Coal and Iron Company, of Ohio, will increase its capital stock to $7,000,000 on March 11th, so as to retire the preferred shares, and issue instead common stock.

Listings on the New York Stock Exchange

were the American Agricultural Chemical Company, $17,044,900 in 6% cumulative preferred stock, and $16,533,000 common. This is the Northern fertilizer combination. The preferred stock is distributed among 1,418 holders, and the common among 813. There is no bonded indebtedness, but there is a mortgage of about $25,000 on a Baltimore, Md., plant. There were also listed on 'Change the Crucible Steel Company of America, $25,000,000 in 7% cumulative preferred stock and $25,000,000 common; Central Coal and Coke Company, $375,000 additional 5% cumulative preferred stock, and $375,000 additional common stock, to be added March 1st, 1901, making the total amount of preferred stock listed on that date $1,875,000, and of common $1,875,000.

Boston. Feb 14.

(From Our Special Correspondent.)

There was almost a surprise on Monday when the market ran away from the operators and there was excitement all around. Buying was heavy and prices high. In the copper stocks the demand was mainly for the newer lake stocks, and the blind pool was comparatively neglected. Later the market quieted down, and on Wednesday there was a great deal of profit taking with a reaction in prices. To-day, however, there was less pressure to sell, and while lower prices were quoted in some cases, there were signs of disposition to buy at the decline, and the volume of trading was very large.

In the old dividend payers, Calumet & Hecla sold at $855; Tamarack, $338; Quincy, $178; Osceola, $80. In the newer Lake companies Copper Range was quoted at $44; Baltic, 41½; Mohawk, $26½; Trimountain, $26. Among the miscellaneous coppers Utah Consolidated brought $34½; Old Dominion, $35; British Columbia, $21; Santa Fe, $7½.

In the blind pool groups, Amalgamated sold down to $90, while Boston & Montana was quoted at $322; Butte & Boston at $82; Arcadian at $20.

There was activity in the gold stocks also, and Centennial-Eureka sold to-day at $26; Cochiti at $10½.

In the general list Dominion Coal sold up to $36½ to-day, while New England Gas and Coke was quoted at $13.

Thomas W. Lawson is at his old game of indefinite accusations against the New England Gas and Coke management, with a view to influencing the legislative mind. How far he can go I have no means of knowing, but if he is pinned down to definite points the result will probably be a collapse of much the same kind as we had a year ago. Someone suggests that a catechism of Trinity Copper, etc., etc., be put to Lawson himself.

Taken altogether the outlook for the Boston market is bigger and better than for some time past. That we may have some large buying and good prices is not unlikely.

Salt Lake City. Feb. 9.

(From Our Special Correspondent.)

The new listing committee of the local Mining Exchange has seen fit to make the following changes: The Antler, of Mercur; the Bingham Gold Placer, of Bingham; the Crown Point, the Garnet, the Joe Bowers Extension, the Sea Swan, the Silver Cloud and the Success, of Tintic, and the New Erie, of West Tintic, have been dropped from the lists entirely; while the Chloride Point, the Daisy, the Eagle, the Geyser-Marion, the Golden Gate Extension, the Herschel and the Omaha, all of Mercur, have been transferred from the "listed" to "non-listed" column.

Trading on the Mining Stock Exchange during the past week has been confined to the modest-priced and speculative stocks. There has been some activity in the big fellows, but the business was light. The number of shares sold was 23,035 more than in the previous week, while the cash value was $20,435 less. In all 219,393 shares sold for $90,718 this week.

San Francisco. Feb. 9

(From Our Special Correspondent.)

The market made quite a show of activity early in the week, but later there was a falling off in quotations, with lighter trading. It was a market of the usual class, but the volume of business was large for this region.

Some quotations noted are: Consolidated California & Virginia, $1.55; Ophir, 75c.; Caledonia, 67c.; Gould & Curry, 41c.; Mexican, 28c.; Best & Belcher, 26c.; Sierra Nevada, 18c.; Choliar, 12c.

On the Producers' Oil Exchange trading has been active, some large blocks of shares changing hands. McKittrick, Petroleum, Lion and Four Oil were special favorites. Some quotations noted are: Kern River, $18; Kern Oil, $11.50; Peerless, $8.75; West Shore, $4.50; Sterling, $3.30; Four Oil, 59c.; Petroleum, 24c.; Lion, 24c.

Articles of incorporation have been filed for the San Francisco Oil Exchange. The membership fee has been fixed at $50 for the first year, and 118 members have already been entered on the books. The permanent organization is to be completed at a meeting to be held on March 12th. The temporary officers are: President, Albert Gerberding; vice-president, S. Otis; directors, E. Heyer, W. W. Gallin, P. J. Cadogan, Charles F. Kapp and W. F. Soule; treasurer, Charles Hirshfeld; secretary, Henry C. McPike.

London. Jan. 29.

(From Our Special Correspondent.)

The London & Globe collapse continues to attract considerable attention among the public. At the recent meeting of shareholders, Mr. Whitaker Wright airily assured his audience that voluntary liquidation and reconstruction with an assessment of 5s. per share would be the simplest thing in the world if they only supported him. Since then, however, we have heard nothing from him and there has been considerable difficulty in the way of smoothing down creditors and getting leading shareholders to definitely promise financial support. Petitions had been presented at the High Court for compulsory liquidation, but at the last moment they were withdrawn, presumably because the petitioners had discovered that the assets would realize very little if disposed of publicly. Their consent to a voluntary liquidation seemed to smooth the way for an immediate reconstruction, and the subsequent delay in putting the scheme through is astonishing some people. The fact is that principal shareholders and principal creditors cannot be got to agree, and the original scheme for reconstruction may have to be modified or even abandoned. In the meantime the market in all British Columbians and West Australians, belonging to the Whitaker Wright group and otherwise, is suffering severely and quotations are very uncertain and shaky. The troubles of the Whitaker-Wright group are by no means confined to the London & Globe. The Standard Exploration Company, which was formed to take over a job lot of unsuccessful West Australian companies, has found itself short of capital and its creditors are pressing inconveniently. No doubt Mr. Whitaker Wright himself will have to supply it with funds temporarily out of his own pocket. The Ivanhoe Gold Corporation, which owns the great mine of that name in West Australia, has announced that it cannot pay any more dividends at present. The directors explain that they are having to spend considerable sums in development and in the provision of sulphide plant, and also they desire to keep plenty of money in hand. It is probable, also, though they do not say so, that the directors desire to use some of the funds in supporting London & Globes and the group generally, and for this purpose may grant loans or otherwise use the floating balance. No doubt we shall hear something further about this matter shortly.

A few weeks ago I mentioned that Mr. Horatio Bottomley had once more come forward as a promoter of mining schemes and toward the end of last year had floated several companies to handle properties in Australia. This week he has announced that his promoting company, the Associated Financial Corporation, is short of funds and that it will be necessary to go in for a reconstruction with an assessment of 2s. per pound share all round. With his customary ability he persuaded shareholders at the meeting to conform to his scheme and there is little doubt that the reconstruction will be effected. We hear very little about the properties themselves, but that is not to be wondered at.

The market generally has been practically dead all week except in the Ashanti section, where all the promoters are starting new companies. A great many shares seem to be changing hands, so that the public must be putting money into these concerns. The promoters also are doing their best to get hold of good mining men to go out to West Africa for them and are offering considerable inducements. Already quite a number of American mining men have gone out, and no doubt many more will follow. Of all the booms in recent years, this appears to have the least substance behind it in the way of gold properties. The information on this source is exceedingly meager. The district is just as unhealthy as can be, but this is an advantage, because it discourages fussy directors and shareholders from going out to see things for themselves and thus pricking the promoters' bubbles.

Paris. Feb. 3.

(From Our Special Correspondent.)

The mining stock market has been quiet and rather depressed. The uncertain future of the metallurgical companies has had its effect, while the lower prices of metals and the evidences of decreasing demand have affected other stocks.

Two iron companies—the Forges et Acieries de la Marine and the Forges et Acieries du Nord et de l'Est—have acquired, each for its own separate account, tracts of land covering areas of the Briey Basin where deposits of minette iron ores were discovered by boring over a year ago. Both companies purpose developing these tracts and mining on a large scale.

The foreign merchandise trade of France for the year ending December 31st is reported by the Ministry of Commerce as below:

	1899.	1900.
Imports	Fr. 4,518,308,000	Fr. 4,408,530,000
Exports	4,152,635,000	4,078,032,000
Excess, imports	365,673,000	330,498,000

This shows a decrease of 109,778,000 fr. in imports; a decrease of 74,603,000 fr. in exports, and a resulting decrease of 35,175,000 fr. in the balance of imports.

The movement of gold and silver in France for the full year is reported by the Ministry of Commerce as below:

Gold:	Imports.	Exports.	Imports.
1900	Fr. 452,043,615	Fr. 125,672,850	Fr. 326,370,765
1899	318,485,100	160,992,675	157,492,425
Silver:			Exports.
1900	145,822,730	206,786,150	60,963,420
1899	187,643,275	219,651,150	32,007,875

Imports of copper and nickel coins, rated at their face or coinage value, were 60,300 fr., in 1900, against 79,200 fr. in 1899. Exports of these coins were 333,900 fr., against 610,200 fr. in the preceding year.

There is a great deal of unprofitable speculation as to the effect which the accession of the new king, Edward VII., may have on the condition of affairs in the Transvaal. I say unprofitable, for I do not think that the change in nominal rulers will have any perceptible effect on the British policy in South Africa. Meantime, there seems to be very little prospect of an early resumption of mining on the Witwatersrand.

Azote.

DIVIDENDS.

NAME OF COMPANY	Latest Dividend. Date.	Per share.	Total.	Total to date.
§American Coal, Md.	Mar. 1	$1.00	$60,000	$1,05',500
Am. Coal, extra	Mar. 1	.25	15,000	.....
Bethlehem Steel	Mar. 1	.50	150,000	1,050,000
†Boston & Mont. Cop.	Feb. 20	5.00	750,000	22,475,000
Boston & Mont, extra.	Feb. 20	5.00	750,000	.....
Center Star, B. C.	Mar. 1	.01	35,000	140,000
Central Oil, Cal.	Feb. 25	.01	6,628	79,536
Continental Oil Cal.	April 1	.03	7,200	7,200
Dewey Con., Utah	Feb. 15	.07½	750	750
*Doctor-Jack Pot, Col.	Feb. 25	.01	29,000	58,000
Federal Steel com.	Feb. 20	5.00	2,324,215	4,067,377
Four Oil, Cal.	Feb. 15	.01	3,000	3,000
General Chem., com.	Mar. 1	1.00	70,703	482,517
Hecla Con., Mont.	Feb. 25	.05	15,000	2,235,000
*Helena, Oregon	Feb. 25	.01	10,000	6,000
Lightner, Cal.	Feb. 1	.02½	2,625	7,875
Mammoth, Utah	Feb. 8	.05	20,000	1,830,000
†National Lead pf.	Mar. 15	1.75	260,820	10,840,100
§Philadelphia Co., pf.	Mar. 1	1.25	99,959	.....
Pointer, Colo.	Mar. 1	.01	12,500	12,500
Quincy Copper	Feb. 25	3.00	300,000	12,270,000
Standard Con, Cal.	Feb 21	.10	20,000	3,999,226
Standard Oil	Mar. 15	20 00	19,500,000	92,625,000
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

*Monthly. †Quarterly.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Alpha Con.	Nev.	24	Mar. 11	Apr. 2	.03
Belcher.	Nev.	67	Feb. 6	Feb. 27	.10
Canton Placer	Cal.	1	Feb. 5	Feb. 25	.05
Centennial	Mich	...	Apr. 12	...	2.00
Central Mammoth	Utah	1	Feb. 15	Mar. 5	.00½
Confidence	Nev.	36	Jan. 30	Feb 21	.20
Contra Costa Oil	Cal.	1	Feb. 23	Mar. 12	.01
Eureka-Swansea	Utah	2	Aug. 17	Feb 16	.00½
Excelsior	Utah	...	Feb. 14	Mar. 20	.00½
Gold Hill	Utah	2	Feb. 13	Mar. 11	.01
Gonyon	Utah	..	Feb. 5	Feb. 25	.00¼
Larkin	Cal.	9	Feb. 25	Mar. 18	.02
Leo	M'nt	..	Mar. 13	Apr. 4	.00¼
Mariposa Com'l & Mg.	Cal.	20	Feb. 11	Mar. 2	10.00
May Day	Cal	5	Jan. 8	Feb. 19	.05
Meteor	Utah	.	Jan. 31	Mar. 7	.00½
North'n Light	Utah	..	Feb. 19	.....	.02
Occidental Con.	Nev.	36	Jan. 31	Feb. 21	.05
Orleans	Cal.	10	Jan 19	Feb. 16	.03
Potosi	Nev.	58	Feb. 19	Mar. 14	.10
Raymond	Utah	1	Feb. 12	Mar. 1	.05
R. G. W.	Utah	...	Jan. 28	Feb. 16	.00½
Salt Lake	Utah	..	Mar. 2	Mar. 22	.00½
Shoebridge Bonanza.	Utah	7	Feb. 25	Mar 18	.01
Silver King	Ariz.	22	Jan. 22	Feb. 19	.25
Sierra Nevada	Nev.	121	Feb 20	Mar. 14	.15
Tanana	Cal.	2	Feb. 13	Mar. 6	.10
Tetro	Utah	17	Feb. 14	Mar. 11	.01
Utah Con.	Nev.	35	Feb. 1	Feb. 21	.05
West Mtn. Placer	Utah	...	Feb 23	Mar. 9	.03
Yankee Con.	Utah	...	Mar. 11	.....	.02
Yuba River	Cal.	2	Feb. 9	Mar. 5	.03

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
*Am. Sm. & Ref.	.....	Feb. 16	Jersey City, N.J.
Am. Steel & W.	U. S.	Feb. 21	71 Broadway, N. Y.
Canton Placer	Cal.	Mar. 6	San Francisco, Cal.
Con. Coal	Md	Feb. 20	Baltimore, Md.
Daly	Utah	Feb. 18	Salt Lake City, Utah.
Eureka Hill	Utah	Feb. 19	Salt Lake City, Utah.
Gold Hill Copper	N. C.	Feb. 20	60 Grand St., J C, N.J
Hecla Con.	Mont.	Feb. 26	Indianapolis, Ind.
*Jack Pot	Colo.	Feb. 18	Colo. Springs, Colo.
National Steel	.....	Mar. 19	East Orange, N. J.
Princess	Colo.	Mar. 2	Colo. Springs, Colo.
.....	.....	.....	.....

*Special Meeting.

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY.	Location.	Par val.	Feb. 8. H.	Feb. 8. L.	Feb. 9. H.	Feb. 9. L.	Feb. 11. H.	Feb. 11. L.	*Feb. 12. H.	*Feb. 12. L.	Feb. 13. H.	Feb. 13. L.	Feb. 14. H.	Feb. 14. L.	Sales
Alamo	Colo.	1									.15				2,000
Amalgamated c.	Mont.	100	92.88	91.25	92.00	91.23	92.25	91.25			92.00	90.00	90.25		32,382
Anaconda, c.	Mont.	25	46.75	45.50	46.00	45.75	47.00	46.13			46.50	45.25	45.00		7,360
Anaconda Gold.	Colo.	5	.45												800
Argentum Jun.	Colo.	2													
Best & Belcher	Nev.	3									.25				500
British Col. Cop.	B. C.	5	19.63	19.38	19.75	19.56	19.85	19.63			21.00	20.65	21.00	20.50	5,500
Brunswick Cons.	Cal.	1	.39	.37	.38						.35				10,140
Catalpa	Colo.	1					.15								300
Chrysolite	Colo.	50			.07										200
Comstock T.	Nev.	100			.04										100
Con. Cal. & Va.	Nev.	2½	1.50		1.50										400
Creede & C. C.	Colo.	1													
Cripple Cr. Con.	Colo.	1									.18				1,500
Golden Fleece	Colo.	1	.26												500
Hale & Norcross	Nev.	3													
Homestake	S. Dak	100	90.00												50
Horn Silver	Utah.	20	1.17		1.17		1.15				1.25	1.18			1,975
Iron Silver	Colo.	20					.63								1,700
Isabella	Colo.	1	.70		.70						.75				800
Jack Pot	Colo.	1													
Leadville	Colo.	10					.07				.08				2,000
Mexican	Nev.	3													
Mollie Gibson	Colo.	5					.21				.21				600
Mt. Rosa	Colo.	1													
Ontario	Utah.	100			6.75										100
Ophir	Nev.	3	.75		.80						.70				800
Pharmacist	Colo.	1	.11				.12				.12				5,000
Phoenix	Ariz.	1													
Portland	Colo.	1	3.15		3.20		3.15				3.00				600
Quicksilver, pf	Cal.	100													
Savage	Nev.	2													
Sierra Nevada	Nev.	3					.25								300
Small Hopes	Colo.	20									.70				100
Standard Con.	Cal.	10													
Syndicate	Cal.	1	.12												500
Tenn. Copper	Tenn.	25	17.25	16.50	18.50	17.50	18.75	18.25			18.50	17.00	18.25	17.00	
Union Copper	N. C.	10	4.25	3.88	4.25	3.88	4.25	4.00			4.25	4.00	4.50	4.00	500
Work	Colo.	1													

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100	61¼	61½	62	60¼	60½	55½			58½	53	53		162354
" " " pf		100	99¾	99⅞	99	93¼	93	9½			93½	94½	95½		35,096
Am. S. & W. Con		100	53	51	53⅞	52¼	53½	52⅝			53⅜	50¾	53		148515
" " " pf'r n		100	94	92⅜	94	93¼	95	93⅜			94	93¼	93¾		16,100
Col. Fuel & I.	Colo.	100	49	43⅝	49		43¼	43¼			48¼	45	46¼		12,910
Col. & H. C. & I.	"	100	17		17½		17				16¾		16		300
Federal Steel		100	53½	51½	53⅜	52	53⅜	52⅞			53¼	50	52		148025
" " " pf		100	81½	80	81¼	80½	82	81			82	80	81½		42,243
Fleming'n C. & C	W.Va.	100	18		18		18				18		20		
*Mong. R. Coal	Pa.	100	10⅞	10⅜	10⅞	10⅜									5,050
" " " pf.	"	100	42	42¾	43	42¾									100
National Lead		100	18½	18	18	17¾					17½		17		900
" " " pf.		100				122					88		87¾		
National Salt		100	42	41⅝	41¾	41	41¾				41⅝	41	40½		2,490
" " " pf.		100	74¾				74¾				74¾	74	74⅜		455
*Pittsburg Coal	Pa.	100	2½	2¾	2¾	2½									6,075
" " " pf.	"	100	87⅞	87⅝	88	87½									2,434
Republic I. & S.		100	16¼	15⅞	16¾	16	16¼	15¾			17	16⅜	15⅞		1,696
" " " pf.		100	62½	61⅞	62		63	62			64⅜	62	63⅞		3,227
Sloss-Shef.		100	22		22		22								400
" " " pf.		100											69		100
Stan. Oil		100	819	817	819	817	821	818			820	818	820	818	30
Tenn C., I. & R.R.		100	64¾	63⅞	65¼	64½	64⅜	64⅛			64½	62½	63¼		6,370
Va. Coal & C.	Va.	100	4	2¾	4¼	3¾	5	2¾			5	3¾			

*On Pittsburg, Pa., Exchange. Total sales, 670,652. †Holiday.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	Feb. 7.	Feb. 8.	Feb. 9.	Feb. 11.	Feb. 12.	Feb. 13.
Belcher	Nev.	$3.00	.17	.18	.19	.18	.19	.20
Best & Belcher	"	3.00	.26	.29	.33	.27	.30	.32
Caledonia	"	3.00	.67	.75	.80	.79	.77	.78
Challenge Con	"	3.00	.15	.18	.20	.20	.21	.21
Chollar	"	3.00	.11	.11	.12	.10	.10	.11
Confidence	"	3.00	.72	.70	.70	.80	.80	.80
Con. California & Virginia	"	2.50	1.50	1.60	1.65	1.55	1.65	1.80
Crown Point	"	3.00	.14	.15	.17	.16	.17	.17
Gould & Curry	"	3.00	.39	.44	.47	.42	.46	.44
Hale & Norcross	"	3.00	.18	.22	.22	.22	.21	.22
Justice	"	2.00	.06	.07	.08	.07	.07	.07
Mexican	"	3.00	.26	.30	.33	.29	.30	.32
Occidental Con	"	3.00	.07	.07	.07	.06	.06	.06
Ophir	"	3.00	.72	.80	.93	.83	.83	.86
Potosi	"	3.00	.08	.09	.10	.09	.07	.08
Savage	"	2.50	.16	.17	.19	.18	.18	.19
Sierra Nevada	"	3.00	.16	.19	.20	.18	.20	.21
Standard Con	Cal.	10.00	4.20	4.20	4.20	4.20	4.25	4.20
Union Con	Nev.	2.50	.24	.28	.29	.27	.29	.31
Utah Con	"	1.00	.07	.07	.08	.08	.08	.09
Yellow Jacket	"	3.00	.12	.12	.14	.10	.10	.12

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	Jan 21. H.	Jan 21. L.	Jan. 22. H.	Jan. 22. L.	Jan. 23. H.	Jan. 23. L.	Jan. 24. H.	Jan. 24. L.	Jan. 25. H.	Jan. 25. L.	Jan. 26. H.	Jan. 26. L.	Sales
Blue Goose	5,000	$100													
Buckhorn	20,000	10.00	3.50		3.50		3.00		3.50	2.90					
Cal. Standard	500,000	1.00	.39	.38	.39	.37	.39	.37	.38	.37					3,800
Caribou	100,000	1.00	.60	.53	.57	.53	.54	.52	.54	.52					1,300
El Dorado	100,000	1.00	2.00	1.75	2.00	1.80	1.90	1.75	1.80	1.50					800
Four	300,000	1.00	.55	.56	.57	.56	.56	.55	.56	.55					4,354
Hanford	2,000	10.00	122	118	118	115	119	117	126	115					24
Hanf'd F. & K.	150,000	1.00	.43	.40	.42	.38	.39	.35	.35						
Home	100,000	1.00	4.15	4.05	4.15	4.05	4.15	4.05	4.15	4.10					630
Homestake	10,000	10.00	11.30	11.13	10.65	10.50	10.63		10.65	10.50					4,400
Independence	600,000	1.00	.22	.21	.22	.20	.21	.20	.21	.20					1,695
Kern	100,000	1.00	11.63	11.50	12.38	11.25	12.50	12.00	12.25	11.38					75
Kern River	20,000	5.00	17.00	16.25	16.75	16.50	17.00	16.00	16.75	15.50					67
McKittrick	60,000	1.00	.57	.55					.36	.33					15,908
Mo'arch of Ari	500,000	1.00	.79	.70	.75	.72	.83	.76	.86	.83					1,300
Monte Cristo	500,000	1.00	2.25	2.15	2.20	2.15	2.35	2.20	2.50	2.25					1,800
Oil City Petrol	5,000	10	35.00	34.00	35.50	34.00	35.00	33.00	34.50	33.00					8
Petrol. Center	500,000	1.00	.28	.21	.27	.24	.28	.25	.25	.24					43,005
Queen Esther	100,000	1.00	.60		.60		.60		.60						
San Joaquin	100,000	1.00	13.00	12.00	12.50	12.25	12.25	11.75	12.50	11.50					950
Sterling	250,000	1.00	3.45	3.25	3.50	3.35	3.50	3.35	3.45	3.25					2,350
Sunset (Orig.)	100,000	5.00	.45		.45	.38	.41	.40							
Twenty-eight	60,000	10.00	2.55	2.50	2.58	2.50	2.53	2.50	2.53	2.50					1,104
Yukon	100,000	2.50	.57	.53	.62	.54	.59	.52	.53	.53					1,400

* Producers' Oil Exchange, San Francisco. Total sales, 89,220 shares.

ST. LOUIS, MO.*

NAME.	Location.	Share capital.	Par val.	Feb. 13. Bid.	Feb. 13. Ask.	NAME.	Location.	Share capital.	Par val.	Feb. 13. Bid.	Feb. 13. Ask.
Am.-Nettie	Colo.	300,000	$10	$1.20	$1.25	Doe Run Lead	Mo	10,000	$100	$125.00	$130.00
Catherine Lead.	Mo.	30,000	10	5.50	5.50	Granite Bimetallic	Mt	1000,000	10	2.75	2.80
Central Lead.	Mo.	10,000	100	130.00	132.50	Kan. & Tex. Coal.	Mo	25,000	100	53.00	55.00
Columbia Lead.	Mo.	50,000	10	12.00	14.00	Renault Lead	Mo	30,000	10	11.00	12.00
Con. Coal	Ill.	50.0 0	100	12.00	12.25	St. Joe Lead	Mo	300,000	10	14.25	15.00

* From our special correspondent.

BOSTON, MASS.†

NAME OF COMPANY.	Par val.	Shares issued.	Feb. 7. H.	Feb. 7. L.	Feb. 8. H.	Feb. 8. L.	Feb. 9. H.	Feb. 9. L.	Feb. 11. H.	Feb. 11. L.	*Feb. 12. H.	*Feb. 12. L.	Feb. 13. H.	Feb. 13. L.	Sales.
Adventure Con.	$25	100,000	10.50	10 00	11.00	10.50	13.00	11.00	16.00	13.50			15.00	14.00	7,923
Aetna Con.	5	100,000													
Allouez	25	80,000	2.93		3.00		3.30	3.25	3.50	3.00			3.50	3.00	3,450
Amal. Copper	100	750,000	92.50	90.25	92.50	91.25	92.25	91.50	92.50	91.25			92.00	90.00	10,527
Am. Z. L. & Sm	25	60,000			12.50	10.00	11.00								500
Anaconda	25	1200,000	45.63												50
Arcadian, c.	25	150,000	19.75	19.00	20.00		20.00		20.50	20.00					1,765
Arnold	25	60,000	3.75	3.50	4.25	3.50	4.00		4.00	3.50			4.00		1,890
Atlantic, c.	25	40,000	32.00	28.50	31.13	29.00	30.00		31.00	30.00			31.00	30.00	2,490
Baltic, c.	25	100,000	42.00	37.00	45.00	43.00	46.00	43.50	45.00	42.00			43.00	41.50	18,152
Bingham, c. g.	10	190,000	20.00	18.75	20.25	19.38	21.00	20.13	21.50	20.13			21.00	20.00	5,498
Bonanza Dev.	10	900,000	1.25				1.25		1.50	1.25			1.25		5,069
Boston	10	100,000	7.00	6.88	7.00	6.88	7.00		7.00				7.00		1,950
Boston & Mont.	25	150,000	323	319	329	320	325	325	325	323			325	320	317
British Columbia	5	200,000											21.25	20.00	900
Butte & Bost., c.	10	200,000	34.25	32.00	36.00	33.50	35.00	34.00	35.00	32.00			35.00	32.50	6,233
Cal. & Hecla, c.	25	100,000	350		355		355		355				325		46
Centennial, c.	25	90,000	24.25	23.00	25.88	24.00	26.50	25.75	28.00	26.25			26.75	26.00	18,101
Cent'l-Eureka	25	100,000			25.25	24.30	27.00	25.25	27.50	26.50			26.50	26.00	4,140
Cochiti, g.	10	175,000	10.25	10.00	10.13	10.00	10.50	10.13	11.00	10.50			10.75	10.00	4,860
Copper Range	25	100,000	47.00	42.75	49.00	45.50	50.00	46.00	49.00	45.75			47.00	44.00	16,848
Daly-West	20	150,0 0			30.25								30.50		135
Dominion Coal.	100	150,000	38.00	36.75	36.50	35.00	36.25		36.38	36.00			36.50	36.00	3,368
do. pref.	100	80,000	109½		109½		109¾	109¼	109¾	109¼			109¾	109½	856
Elm River.	12	100,000	5.13	4.75	5.38	5.00	6.25	6.00	6.63	6.00			6.38	5.75	7,895
Franklin, c.	25	100,000	19.00	18.25	19.50	19.00	20.35	20.00	23.00	21.00			22.00	21.00	6,290
Humboldt.	25	40,000							.75	.63			75	.50	480
I. Royal Con., c.	25	100,000	39.50	38.25	39.75	39.25	42.50	40.50	42.00	40.50			41.00	38.50	16,604
Mass Con.	25	100,000	13.25	12.50	14.88	12.75	15.00	14.50	15.00	14.00			14.00	13.50	5,300
Mayflower	25	100,000	2.25	2.00	2.25		2.50	2.25	4 00	2.50			3.50	3.00	8,555
Melones	10	157,577	1.25												100
Merced	15	100,000											6.00		500
Michigan	25	100,000	6.00	5.50	6.00	5.75	7.00	6.00	9.50	6.00			9.00	7.75	4,420
Mohawk, c	25	100,000	25.00	23.50	28.00	25.00	29.00	28.00	29.00	27.50			28.00	25.00	7,243
Mont. C. & C.	25	200,000	6.25				6.00								150
Naps	7	100,000					4.00		4.00						300
National	25	100,000											1.63	1.50	400
N.E. Gas & Coke	100	160,000	13.50	13.25	12.75	12.00	12.25	12.00	12.75	12.00			12.00		441
Old Colony	25	100,000	3.50				5 00	4.00	5.13	4.50			5.00	4.00	4,770
Old Dominion, c	25	100,000	33.00	32.13	36.00	32.38	37.50	35.50	38.00	36.00			37.00	34.50	32,118
Osceola, c.	25	93,000	36.00	33.50	37.25	36.00	9 .00	37.00	90.00	38.50			39.00	37.00	5,418
Parrot, s c.	10	229,350	49.75	48.00	50.00	49.50	51.00	50.00	51.25	50.50			51.50	49.50	7,223
Phoenix Con	25	100,000											5.13	5.00	1,175
Quincy, c.	25	100,000	172	170	175	174	180	177	178	175			175		415
Rhode Island	25	100,000	5.00	4.75	5.00	4.75	5.75	5.00	10.00	6.00			8.00	7.00	9,549
Santa Fe, g. c.	10	250,000	3.50	6.00	7.00		7.63	7.50	8.50	7.75			8.13	8.00	4,510
Santa Ysabel	5	130,000			2.00		2.00		2.00						500
Tamarack, c.	25	60,000	339	325	340	339							338		62
Tecumseh	25	50,000	2.00		1.75	1.63	2.00		3.00	2.00			3.00	2.25	2,170
Trimountain	25	100,000	25.25	22.00	29.00	26.00	28.50	27.50	27.38	27.00			28.50	26.00	20,737
Union C. L.	25	80 000	3.00		3.00		3.00		3.25	3.12			3.50	3.00	430
UnitedStatesMg.	25	250,000	12.00	11.00	12.50	11.88	18.50	12.50	13.38	12.75			13.25	12.00	25,641
Utah Con., g. c.	5	900,000	34.00	32.75	35.00	33.75	36.25	35.00	37.00	35.50			36.25	34.50	21,744
Victor, g.	5	200,000			.80								.80		200
Victoria	25	100,000	4.00		4.00	3.88	4.00		5.00	4.50			5.25	5.00	8,145
Washington	25	60,000							.80	.75					150
Winona, c.	25	100,000	6.88	6.00	6.75	6.38	8.75	7.00	10.00	7.50			8.00	6.50	31,771
Wolverine c.	25	60,000	50.00	49.50	50.00	49.75	50.50	49.50	51.00	50.00			51.25	50.25	4,536
Wyandot	25	100,000	1.75		1.75		1.75		2.75	2.25			3.00	2.50	4,110

† Official quotations Boston Stock Exchange. Total sales, 402,175 shares. * Holiday.

PHILADELPHIA, PA.§

NAME OF COMPANY.	L'cation.	Par Val.	Feb. 7. H.	Feb. 7. L.	Feb. 8. H.	Feb. 8. L.	Feb. 9. H.	Feb. 9. L.	Feb. 11. H.	Feb. 11. L.	Feb. 12.* H.	Feb. 12.* L.	Feb. 13. H.	Feb. 13. L.	Sales
Am. Alkali		$50	2½						2.00				2.13	2.00	1,990
Am. Cement		10	7.88		7.50	7.38							7.50	7.38	1,120
Bethlehem Iron	Pa.	50	60.88		61.00	60.25			61.50	60.38			61.50		852
Bethlehem Steel	"	50	19.00		19.00				19.00				19.13	19.00	800
Cambria Iron	"	50	46.00		46.00				46.25						241
†Cambria Steel	"	50	18.13	18.00	18.25	18.00	18.00		18.25	18.00			18.13	18.00	4,226
Susq. I. & S.	"	10	2.75	2.38	2.75		2.50		2.50				2.50		5,795
United Gas I.	"	50	125	124	124¼		125	124¾	127¾	126½			128	127	4,659

Total shares sold, 19,683. § Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia. * Holiday.

SALT LAKE CITY, UTAH. Feb. 9

STOCKS.	Shares.	Par val.	Bid.	Asked.	STOCKS.	Shares.	Par val.	Bid.	Asked.
Ajax	300,000	$10	$0.30¾	$0.30⅞	Horn Silver	400,000	$25		
Albion			.22½	.60	Joe Bowers	400,000	1		
Alice	400,000	25	.35		Lower Mammoth	150,000	1	$3.08	$3.10
Anchor			2.08	2.50	Mammoth	400,000	5	2.00	2.10
Ben Butler			.12	.12½	May Day	400,000	¾	.42⅜	
Bullion Beck & Ch.	100,000	10	2.90	4.25	Northern Light	400,000	5	.04	.04½
Centennial Eureka	200,000	25	24.00		Ontario	150,000	100	7.00	7.50
Cons. Mercur	1,000,000	5	3.08	3.12½	Rocco H'st'k Nev.			1.02	1.05
Dalton	500,000	5	.01½	.12	Sacramento	1,000,000	5	.38¼	.38½
Dalton & Lark	2,500,000	1	.02	.05	Showers Cons.	400,000	5		.15
Daly	150,000	20	1.42		Silver King	150,000	20	76.50	79.00
Daly-West	150,000	20	30.62½	30.87½	Silver Shield			2.37½	.23¾
Dexter	200,000	5	1.13	1.15	Star Consolidated	500,000	1	.30⅞	.31
Eagle & Blue Bell	250,000	1	.75	.85	Sunbeam	250,000	1	.30	
Four Aces	250,000	1	.02¾	.05	Swansea	100,000	5	3.80	3.88
Galena	100,000	10	.02¼		South Swansea	150,000	1	.96½	1.05
Golden Eagle	250,000	1	.02¼	.02¾	Utah	100,000	1	.35	.36
Grand Central	250,000	1	5.90	6.00	Valeo	200,000	10	.36	.37½
Homestake	400,000	1	.05	.10	Yankee Consol'd	250,000	0.10	.09	.10

TORONTO, ONT.

NAME OF COMPANY.	Par val.	Feb. 2. B.	Feb. 2. A.	Feb. 4. B.	Feb. 4. A.	Feb. 5. B.	Feb. 5. A.	Feb. 6. B.	Feb. 6. A.	Feb. 7. B.	Feb. 7. A.	Feb. 8. B.	Feb. 8. A.	Sales
Ontario:														
Golden Star	1			.02	.02½			.02	.02⅝	.02½	.02½	.02½		
Ham Reef	1			.01¼										338
Olive	1													
British Col.:														
Cariboo M'k	1			.34	.38			.32	.40	.34	.36	.30	.38	1,000
Crow's N. C.	25			65.00	75 00			63.00	75.00	65.00	75.00	65.00	75.00	
Deer Trail	1			.02½	.03			.02½	.03	.02¼	.02½	.02	.02½	30,000
Eve Star	1			.05	.08			.05	.08	.05	.05	.05	.08	2,000
Fairview	1			.08				.03		.02½	.02½	.02½	.05	12,000
Iron Mask	1			.39	.42			.40½	.43	.39	.41	.38	.41½	500
Jim Blaine	1													
Knob Hill	1			.49	.53			.40	.50	.40	.55			
Mont Cristo	1													
Mont & Lon	0.24			.04¼						.04				4 000
Morrison	1			.05¾	.07			.02¾	.07½	.05¾	.07½	.06	.07½	20,000
Mount. Lion	1			.20	.40			.20	.40	.20	.46	.15	.40	
North Star	1			.34	.36½			.36	.90	.35½	.38½	.35	.90	
Payne	1			.50	.60			.45	.55	.40	.50	.45	.54	
Princess M.	1													
Rambler	1			.29	.31			.30	.31	.29	.31	.23½	.30¾	
Republic	1			.42	.45			.45	.48	.43	.46	.44	.46½	
Van Anda	1			.01¾	.02½									
Victory Tri.	1													
Virtue	1			.23	.23¾			.24	.27	.22	.29			500
War Eagle	1			.60	.75			.60	.67	.52	.56	.50	.56	100
Waterloo	0.10			.02¼	.03			.02	.03	.02	.03	.02	.03	
White Bear	1			.04½	.04¾			.04¼	.04¼	.04½	.04¼	.04	.04¼	13,500
Winnipeg	1			.03¼	.04½			.03¼	.05	.03½	.05	.03¼	.05	
Develop Co.:														
B.C.G. Field	1			.02¾	.03¼			.02⅝	.03¼	.02¾	.03¼	.02¾	.03¼	
Can. G. F. S.	0.10			.07	.07½			.07	.07½	.07	.07½	.07	.08½	5,000

Total shares sold, 93,963.

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.:

Name of Company.	Par val.	Feb. 2. B.	Feb. 2. A.	Feb. 4. B.	Feb. 4. A.	Feb. 5. B.	Feb. 5. A.	Feb. 6. B.	Feb. 6. A.	Feb. 7. B.	Feb. 7. A.	Feb. 8. B.	Feb. 8. A.	Sales.
Acacia	$1	.....	.....	.21½	.22	.19½	.19⅝	.17⅝	.17½	.19⅝	.20	.19⅛	.20	113,600
Alamo	1	.....	.....	.13⅜	.15	.14½	.14¼	.14	.14⅜	.14¼	.14⅜	.14¼	.14⅜	60,000
Am. Con	1	.....	.....	.05	.....	.03¼	.06⅜	.06¼	.06⅜	.06¼	.06⅜	.06¼	.06⅜	2,000
Anaconda	1	.....	.....	.44½	.45	.43⅜	.44	.43¾	.44	.43⅝	.44½	.43⅝	.44½	33,700
Anchor	1	.....	.....	.02⅜	.03	.02⅜	.02⅞	.02⅛	.....	.02⅛	.02¾	.02⅜	.02⅞	2,000
Anchoria L	1	.....	.....	.....	1.00	.....	1.00	.....	1.00	.....	1.00	.....	1.00	.....
Antelope	1	.....	.....	.02¼	.03¾	.02	.02¾	.02¼	.02¾	.02	.02¾	.02¼	.02¾	2,000
Aola	1	.....	.....	.05	.05½	.05¼	.05⅝	.05¾	.06	.5	.06	.....	.06	1,000
Arcadian	1	.....	.....	.05	.01½	.05	.....	.....	.05	.....	.05	.....	.04⅝	1,000
Arg'ntum J	1	.....	.....	.27	.28	.26	.29	.26	.29	.....	.28	.....	.28	100
Banner	1	.....	.....	.03½	.03¼	.03¼	.....	.03	.03¼	.03¼	.03⅜	.03¼	.04	15,000
Battle Mt.C	1	.....	.....	.24½	.24⅝	.21	.25	.24¼	.25	.24½	.25	.24½	.25	16,000
Ben Hur	1	.....	.....	.....	.01	.07	.02¼	.....	.....	.....	.08	.06	.03	.....
Black Bell	1	.....	.....	.10½	.....	.10½	.11	.10½	.....	.10⅝	.....	.10¾	.11	9,000
Blue Bell	1	.....	.....	.17⅜	.18	.19	.19⅛	.19¼	.19⅛	.21	.22	.21¾	.22	38,300
Bob Lee	1	.....	.....	.06	.06¼	.03⅜	.06½	.06	.03¼	.06⅛	.06¼	.06½	.03¾	24 000
Buckhorn	1	.....	.....	.....	.06¼	.05¼	.05⅛	.05½	.....	.05¾	.....	.05⅛	.06	4,500
Cadillac	1	.....	.....	.02¼	.02⅝	.02⅛	.02⅝	.02⅛	.02⅜	.02⅝	.02¾	.02⅜	.02⅝	6,000
Central C'n	1	.....	.....	.06	.06¼	.05	.05¼	.06	.03½	.06	.06¼	.06⅛	.06½	1,000
Champion	1	.....	.....	.06	.06½	.06	.03½	.06	.03½	.06	.....	.06	.06½	.....
Chicolo	1	.....	.....	.02½	.....	.02½	.02⅝	.02¾	.02¾	.02½	.02¾	.02⅝	.02⅜	17,000
C. K. & N	1	.....	.....	.02⅜	.02⅝	.02½	.02¾	.02¼	.....	.02½	.02⅝	.02½	.02⅜	10,000
C. C.Col'bia	1	.....	.....	.11	.11½	.11	.11⅜	.11⅛	.11⅞	.11⅜	.11⅞	.11¼	.11⅝	9,000
C. C. G. Ext	1	.....	.....	.12¼	.13⅜	.....	.14	.....	.14	.....	.14	.12	.14	1,000
C. C. & Man	1	.....	.....	.03⅜	.03⅝	.03¼	.....	.03⅛	.....	.09	.03½	.03½	.03⅝	33,000
Copper Mt.	1	.....	.....	.03⅝	.03½	.03¾	.03¼	.03½	.03½	.03½	.03¾	.03½	.03¾	23,000
Creede& CC	1	.....	.....	.08	.15	.08¼	.....	.....	.....	.....	.....	.....	.....	.....
C. C. Con	1	.....	.....	.10⅜	.10⅝	.10⅜	.11	.10¾	.10⅝	.10⅜	.....	.12	.13	14,000
Dante	1	.....	.....	.03	.03¼	.03	.04½	.03	.03¼	.07⅜	.07⅝	.07⅝	.07⅞	41,000
Des Moines	1	.....	.....	.05⅜	.05⅝	.03⅜	.03½	.05⅜	.....	.05⅜	.05⅝	.05⅜	.05⅝	1,000
Eclipse	1	.....	.....	.09⅜	.09⅝	.09⅜	.1.½	.09½	.....	.09¼	.09⅝	.09	.09½	15,000
Elkton Con	1	.....	.....	1.91½	1.96	1.91	1.2.	1.91	1 93¾	1.88	.....	1.89¼	1.90	24,243
El Paso G.	1	.....	.....	.55	.....	.55	.56	.55	.....	.54½	.56	.54½	.....	9,600
Enterprise	1	.....	.....	.13¼	.15	.13	.14½	.....	.14½	.13	.14½	.....	.14½	1,000
F. Rawlings	1	.....	.....	.....	.....	.....	.....	.14	.....	.14	.....	.14	.....	.....
Findley	1	.....	.....	.11¼	.12	.11¼	.....	.....	.....	.12	.12½	.12	.13	5.000
Garf. Conn.	1	.....	.....	.07½	.....	.07½	.....	.07½	.....	.07½	.10	.07⅝	.10	.....
Golden Fl.	1	.....	.....	.27	.3.	.28	.30	.28	.....	.2.	.....	.30	.40	6,000
Gold Hill	1	.....	.....	.02⅜	.02¾	.....	.03½	.02½	.02⅜	.02½	.02¾	.02½	.02⅜	9,0.0
Gold Sov'n.	1	.....	.....	.05½	.0.	.07⅜	.08	.07½	.08	.07	.08	.07⅜	.08	14,000
Hayden	1	.....	.....	.....	.02	.....	.....	.....	.02	.....	.....	.....	.02	.....
Humboldt	1	.....	.....	.02½	.03½	.....	.....	.02½	.03½	.02¾	.03	.02½	.03	11,000
Ida May	1	.....	.....	.03	.24	.....	.24	.23	.23½	.....	.23	.....	.23	4,000
Ing. Con	⅛	.....	.....	.....	.....	.....	.....	.18½	.19¼	.....	.13⅝	.13¾	.13¾	10,000
Iroaclad	1	.....	.....	.05⅛	.0.	.03¾	.06	.05¾	.05½	.05¾	.06	.05¾	.06	1,000
Isabella	1	.....	.....	.6.	.70	.59½	.70	.68	.69¾	.70	.70¼	.71⅝	.72	20,700
Jack Pot	1	.....	.....	.60	.63	.6.	.62	.60	.61	.58	.59	.57	.57½	6,700
Josephine	1	.....	.....	.01¾	.01⅞	.....	.02	.....	.01⅞	.01⅛	.01⅞	.....	.01⅝	8,000
Key West	1	.....	.....	.02⅜	.02¾	.02½	.02¼	.02⅝	.....	.02⅜	.02¾	.02⅜	.02¾	10,000
Lexington	1	.....	.....	.10½	.11	.10½	.11⅛	.10¼	.11	.10¼	.10¼	.10	.....	27,000
Magnet R.	1	.....	.....	.03¼	.03⅝	.03⅛	.04½	.03¼	.03⅝	.03⅜	.0 ½	.03¼	.03¾	9,000
Margaret	1	.....	.....	.02⅜	.02⅝	.02¼	.02¾	.02½	.02¾	.02⅜	.02⅞	.02¾	.02⅝	17 000
Margery	1	.....	.....	.02¼	.02⅜	.02¼	.02⅝	.02½	.03	.02⅜	.02¾	.02¾	.02¾	32,000
Matoa	1	.....	.....	15	.16	.15	.16	.15	.16	.15	.16	.15	.....	2,000
Midway	1	.....	.....	.04⅜	.04½	.04¼	.04½	.04	.04¼	.03½	.04¼	.04¼	.04½	12,500
M. J. T	1	.....	.....	.03½	.03¾	.03¼	.04	.03⅜	.04	.03½	.03⅝	.03½	.03¾	22,000
Mobile	1	.....	.....	.03½	.04	.03⅜	.03¾	.03½	.03¾	.03⅜	.03⅝	.03½	.03¾	7,000
Moll.Dwyer	1	.....	.....	.07	.07¼	.07	.07⅜	.07	.07⅜	.06¾	.07	.06¾	.07	125,000
Mollie Gib.	1	.....	.....	.24	.30	.23	.24	.22	.24	.22	.23⅛	.22	.24	.....
Monarch	1	.....	.....	.04⅜	.08¾	.08¼	.08¼	.07⅞	.08	.08	.08¼	.07¾	.08¼	7,000
Montreal	1	.....	.....	.04½	.....	.04	.05½	.04	.....	.04¼	.05	.04½	.....	.....
Moon-A'c'r	1	.....	.....	.25	.35	.25	.27	.25	.....	.26	.....	.25	.....	1,300
Morning S	1	.....	.....	.03¾	.03⅞	.03⅜	.03⅞	.03¼	.04	.03⅝	.04	.03⅝	.04	8,000
Mtn.Beauty	1	.....	.....	.....	.05	.07¼	.08	.07½	.08	.07⅜	.05	.07¼	.....	1,000
Mt. Rosa	1	.....	.....	.41	.....	.40	.....	.41	.....	.41	.....	.41	.....	100
National	1	.....	.....	.10⅜	.10½	.10⅛	.10⅜	.10	.10⅛	.....	.10	.10	.10⅛	61,500
Nellie V.	1	.....	.....	.06¾	.07	.06¾	.07⅛	.06¾	.07	.06¾	.07	.06⅞	.07⅛	12,000
New Haven	1	.....	.....	.09	.09¼	.08⅝	.08¾	.05⅜	.09	.09¼	.09⅛	.09⅜	.09¾	173,0.0
Olive B'nch	1	.....	.....	.04½	.04¾	.03⅝	.04	.....	.04¼	.03⅜	.05⅛	.03½	.03¾	17,000
Ophir	1	.....	.....	.32	.40	.33	.....	.33	.....	.....	.....	.31	.....	.....
Oriole	1	.....	.....	.03½	.03¾	.03	.03½	.03¼	.03¾	.....	.....	.03½	.03¾	6,000
Orphan	1	.....	.....	.16	.17	.16	.....	.15	.16	.15	.....	.15	.16	19,000
Pelican	1	.....	.....	.....	.02	.....	.....	.....	.02¼	.01½	.01⅝	.01½	.01⅞	3,000
Pharmacist	1	.....	.....	.10	.....	.10¾	.11	.09¾	.10¼	.10¼	.10½	.10½	.11	38,000
Pilgrim	1	.....	.....	.10½	.10⅝	.10½	.10⅞	.10½	.10¾	.....	.....	.10	.10¾	4,000
Pinnacle	1	.....	.....	.19	.21	.18	.20	.....	.15½	.....	.15½	.....	.19½	1,000
Portland	1	.....	.....	3.22	3.25	.....	3.25	3.15	3.25	.....	3.25	3.05	3.25	2,700
Prince Alb.	1	.....	.....	.05½	.05¾	.05⅜	.05⅜	.05¼	.05⅜	.05¼	.05½	.05½	.05⅜	70,361
Princess	1	.....	.....	.05¼	.05⅜	.05⅜	.05½	.05¼	.05¾	.05¼	.05¾	.05⅜	.05½	9,000
Progress	1	.....	.....	.07¾	.08	.07¼	.07½	.06¾	.07	.06¾	.06⅝	.06¾	.....	101,000
Pythias	1	.....	.....	.04½	.04¾	.04	.04¼	.04	.04½	.05	.04⅜	.04¾	.....	9,0.0
Republic	1	.....	.....	.05½	.08¾	.05½	.04⅜	.....	.03½	.08⅜	.08¾	.08	.08⅛	64,000
Rob't Burns	1	.....	.....	.04¾	.04⅞	.05¼	.05⅜	.05½	.05¼	.05½	.05¼	.04⅞	.05	49,000
Rose Maud	1	.....	.....	.07	.....	.07	.....	.07	.07½	.07¼	.....	.08	.04¾	5,000
Rose Nicol	1	.....	.....	.10½	.10¾	.10¾	.....	.11	.....	.10¾	.11	.10¾	.....	10,000
Silver Gold	1	.....	.....	.01¾	.02	.01¾	.02	.01¾	.02	.01¾	.02	.....	.02	2,000
Theresa	1	.....	.....	.02¼	.03	.....	.....	.07	.....	.07¼	.07½	.07¼	.07½	3,000
Trachyte	1	.....	.....	.06⅞	.07½	.06½	.07¼	.06¾	.07	.06¾	.....	.06⅝	.07⅛	7,000
Uncle Sam	1	.....	.....	.04½	.04¾	.04¾	.05	.04½	.04¾	.04½	.04¾	.04	.04¾	8,000
Union	1	.....	.....	.09	.12	.....	.12	.09	.12	.09	.12	.09	.12	.....
Va. M.	1	.....	.....	.07½	.....	.08	.....	.10	.....	.09	.10	.....	.....	1,500
Vindicator	1	.....	.....	.....	1.30	.....	1.30	.....	1.35	.....	1.25	.....	1.35	.....
Work	1	.....	.....	.19	.19½	.18	.19⅜	.18	.19	.18½	.18¾	.14½	.25	90,500
Zenobia	1	.....	.....	.10	.....	.10½	.....	.10½	.12	.19⅜	.12	.10	.....	329

Colorado Springs Mining Stock Exchange. Total sales, 1,676,253 shares.

DENVER, COLO.‡

Name of Company.	Par val.	Feb. 4 B.	Feb. 4 A.	Feb. 5. B.	Feb. 5. A.	Feb. 6. B.	Feb. 6. A.	Feb. 7. B.	Feb. 7. A.	Feb. 8. B.	Feb. 8. A.	Feb. 9. B.	Feb. 9. A.	Sales
Acacia	1	.20	.21	.20	.21½	.....	.....	.18	.18½	.19	.20	.25¼	.....	8,000
Alamo	5	.....	.....	.....	.....	.....	.....	.....	.....	.13⅞	.....	.14½	.15	9,000
Anaconda	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arg. J	1	.....	.....	.28	.28⅞	.....	.....	.....	.29	.26	.28	.....	.....	.....
Dictator	1	.03⅛	03¼	.03	.03¼	.....	.....	.03⅛	.....	.....	.03¼	.03	.03⅞	2,000
Elkton	1	.....	.....	1.93	2.00	.....	.....	.....	.....	.....	.....	1.83	.....	5,000
Ironclad	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.05¾	.06	.....	1,000
Isabella	1	.....	.....	.69½	.....	.....	.....	.70½	.72	70	.....	.77	.....	1,500
Josephine	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Magnet R.	1	.03¼	.03⅜	.03⅝	.....	.....	.....	.03⅜	.03⅝	.03⅜	.03⅞	.03⅝	.03⅜	9,000
National	1	.....	.....	.....	.....	.....	.....	.09⅝	.10½	.....	.....	.....	.....	.....
New Haven	1	.09½	.09¼	.....	.....	.....	.....	.09½	.09¾	.09¼	.09¾	.09⅝	.09⅝	29,000
Reno	1	.03¾	.....	.....	.....	.....	.....	.....	.....	.03⅜	.....	.....	.....	4,000
Republic	1	.03¾	.03¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,000
Work	1	.....	.....	.19	.19½	.....	.....	.....	.....	.....	.....	.....	.....	.....

‡ Official Quotations Denver Stock Exchange. Total sales, 76,500 shares.

SPOKANE, WASH.

Week Feb. 8.

Name of Company.	Par val.	B.	A.	Sales.	Name of Company.	Par val.	B.	A.	Sales.
Crystal	.....	.03½	.05	.....	Mountain Lion	$1	.22	.80	1,600
Deer Trail Con	$1	.02⅜	.03⅝	8,000	Princess Maud	0.10	.01¾	.02⅛	.....
Evening Star	1	.05	.10	.....	Quilp	1	.23	.25½	.....
Gold Ledge	.....	.01⅞	.02¼	61,000	Rambler Cariboo	0.25	.29¾	.30¾	1,500
Jim Blaine	1	.....	.....	.....	Reservation	.....	.03½	.05	500
Lone Pine Surp. Con	1	.06½	.07½	1,000	Sullivan	.....	.13½	.14	11,000
Morning Glory	0.10	.06¼	.07½	1,500	Tom Thumb	.....	.12½	.14½	.....

PARIS.

Jan. 24.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Opening.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	85.00	1,800.00	1,826.00
" " Firminy	"	" "	3,000,000	500	175.00	3,345.00	3,395.00
" " Fives-Lille	"	" "	12,000,000	500	.....	453.00	465.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	3,540.00	3,560.00
" " la Marine	France	Steel mfrs	20,000,000	500	60.00	1 600.00	1,596.00
Anzin	"	Coal	.....	.....	360.00	6,175.00	6,170.00
Boleo	Lower Cal	Copper	.....	500	176.00	2,700.00	2,684.00
Briansk	Russia	Coal & iron	.....	500	.....	522.50	612.50
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	26.75	22.50
Courrieres	France	Coal	600,000	500	90.00	2,535.00	2,529.00
Dombrowa	Russia	"	.....	500	12.50	99 .00	990.00
Dynamite Centrale	France	Explosives	.....	500	22.50	420.00	439.00
Escombrera-Bleyberg	Spain	Lead	.....	500	70.00	1,140.00	1,170.00
Fraser River	Brit. Col'mb.	Gold	250,000	25	.....	7.00	7.00
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	153.50	147.50
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	485.00	486.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,050.00	990.00
Metaux, Cie. Fran. de	France	Metal d'lers	25,000,000	500	10.00	475.00	475.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	85.00	1,000.00	1,000.00
Napthe Baku	Russia	Petroleum	.....	.....	.....	705 00	627.50
Napthe Nobel	"	"	.....	.....	.....	525.50	526.00
" " parts	"	"	.....	.....	.....	10.6.2.50	10,500.00
Nickel	N. Cal'd'nia	Nickel	10,000,000	250	17.50	500.00	500.00
Penarroya	Spain	Coal, etc	.....	500	100.00	2,600.00	2,530.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	2 00	2.50
Salines de l'Est	France	Salt	.....	500	5.00	210.00	215.00
Salines du Midi	"	"	.....	500	25.00	890.00	886.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	677 50	665.00

LONDON

Jan 31

Name of Company.	Country.	Author-ized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
American:			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields, g	Alaska	£300,000	1 0 0	2 3	Jan., 1901	13 9	1 1 3
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 13 9	5 1 3
Anaconda, c., s	Montana	6,000,000	5 0 0	3 2	Oct., 1900	8 10 0	8 12 6
De Lamar, g., s	Idaho	400,900	1 0 0	0 6	May, 1900	2 6	3 6
El Oro	Mexico	1 000,000	1 0 0	1 0	Jan., 1901	1 6 3	1 7 6
Enterprise, g	British Col'mbia	200,000	1 0 0	.....	.....	10 0	15 0
Grand Central, g., s	Mexico	900,000	1 0 0	2 0	Jan., 1900	6 3	8 9
Hall Mg. & Sm., c., s	British Col	325,000	1 0 0	.....	.....	4 0	5 0
Le Roi, g	" "	1,000,000	5 0 0	5 0	Nov., 1899	7 2 6	7 7 6
Le Roi No. 2, g	"	120,000	5 0 0	.....	.....	4 0 0	5 0 0
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	7 6	12 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	2 0	2 9
Mountain Copper	California	1,250,000	5 0 0	9 0	Oct., 1900	5 0 0	5 2 0
Stratton's Independence	Colorado	1,100,000	1 0 0	6	Jan., 1901	1 2 6	1 5 0
Copiapo, c	Chile	200,000	2 0 0	3 4	Dec., 1900	3 0 0	3 5 0
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	2 2 6	2 5 0
St. John del Rey, g	Brazil	600,000	1 0 0	1 0	Dec., 1900	1 3 9	1 6 3
Utah Con.,g.(Highl'nd Boy)	Utah	800,000	1 0 0	rts.	Mar., 1898	6 5 0	6 10 0
Velvet, g	British Col'mbia	100,000	1 0 0	.....	.....	17 6	1 0 0
Ymir, g	"	200,000	1 0 0	1 0	Jan., 1901	1 10 0	1 12 6
Rossland Great West, g	"	100,000	5 0 0	.....	.....	1 15 0	2 5 0
British Am. Corp	"	1,500,000	1 0 0	2,0	Mar., 1900	4 0	5 0
European:							
Linares, l	Spain	45,000	3 0 0	14 0	Oct., 1900	8 10 0	9 10 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	£1	" "	3 5 0	3 10 0
Rio Tinto, c	Spain	1,625,000	5 0 0	£5	" "	37 10 0	37 15 0
" " pref	"	1,625,000	5 0 0	2 6	" "	6 0 0	6 2 6
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	8 15 0	9 0 0
Australian:							
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	2 11 3	2 13 9
Broken Hill Prop., s	N. S. Wales	384,000	8 0	1 6	Nov., 1900	2 8 0	2 9 0
Great Boulder Prop	W. Australia	175,000	2 0	6	Feb., 1901	1 18 6	1 14 0
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	Oct., 1900	3 17 6	4 0 0
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Nov., 1900	7 15 0	8 0 0
Kalgurlie, g	"	120,000	1 0 0	rts.	Oct., 1899	3 15 0	4 0 0
Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	6 11 3	6 13 9
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	2 0	Jan., 1900	5 10 0	5 12 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Feb., 1901	4 17 6	5 0 0
Waihi g	New Zealand	320,000	1 0 0	rts.	Jan., 1901	10 7 6	10 12 6
Indian:							
Champion Reef, g	Colar Fields	220,000	10 0	5 0	Jan., 1901	5 15 0	5 17 6
Mysore Gold, g	"	250,000	10 0	4 0	Nov., 1900	5 11 3	5 13 9
Nundyroog, g	"	242,000	1 0 0	2 0	" "	3 3 9	3 6 3
Ooregum, g	"	145,000	1 0 0	2 6	Dec., 1900	3 16 3	3 18 9
" pref. g	"	120,000	1 0 0	2 6	" "	4 18 9	5 1 3
African:							
British S. Africa, chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	2 18 9	3 1 3
Cape Copper, c	"	600,000	1 0 0	5 0	Jan., 1901	4 17 6	5 2 6
" pref	"	150,000	2 0 0	5 0	" "	4 10 0	4 15 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	4 12 6	4 17 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	17 6	1 2 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	12 10 0	13 0 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Jan., 1901	28 2 6	28 7 6
Ferreira, g	Transvaal	90,000	1 0 0	90 0	Aug., 1899	17 10 0	18 10 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	" "	8 0 0	8 10 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	" "	5 5 0	5 7 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Apr., 1900	7 12 6	7 17 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Sept., 1900	15 0 0	16 0 0
Johannesburg Con. Invet.	So. Africa	2,750,000	1 0 0	2 0	Aug., 1899	1 15 0	1 17 6
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Sept., 1899	5 0 0	5 10 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Aug., 1899	2 15 0	3 0 0
May Con., g	"	290,000	1 0 0	6 0	July, 1899	3 10 0	3 15 6
Meyer & Charlton, g	"	100,000	1 0 0	8 0	June, 1899	4 7 6	4 12 6
Namaqua, c	Cape Colony	200,000	2 0 0	4 0	Dec., 1900	4 15 0	5 0 0
Primrose New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 8 9	3 11 3
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	" "	36 12 6	36 15 0
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	.....	7 12 6	7 17 6
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	15 0	17 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	5 10 0	5 12 6
Wolhuter, g	"	880,000	4 0 0	2 0	Feb., 1899	3 10 0	3 15 0

MONTREAL, CANADA.*

Name of Company.	Par val.	Week Feb. 11. H.	Week Feb. 11. L.	Sales.	Name of Company.	Par val.	Week, Feb. 11. H.	Week, Feb. 11. L.	Sales.
Big Three	$1	.01½	.....	1,000	Montreal G. F	$1	.03½	.....	.....
California	1	.04½	.04	.....	Montreal-London	0.24	.05	.01¼	.....
Can. Gold Fields	0.10	.07½	.....	2,500	Okanogan	.....	.....	.....	.....
Decca	1	.03½	.....	6,000	Oregon	1	.....	.....	.....
Deer Trail Con	1	.08	.01½	.....	Payne	1	.55	.48	.....
Evening Star	1	.07	.08	5,000	Rambler-Cariboo	1	.40	.25	.....
Golden Star	1	.05	.02	.....	Republic Con	1	.48	.43	4,500
Gold Hills Dev	1	.02¼	.....	.....	Slocan-Sovereign	1	.03½	.07½	.....
Knob Hill	1	.52	.48	.....	Virtue	1	.32½	.30	.....
Monte Christo	1	.32	.....	.....	War Eagle	1	.65	.58	.....

* Montreal Stock Exchange. Total sales, 19,000 shares.

MEXICO.

Feb. 1.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Durango:					Hidalgo:				
Barradon y Cab	2,400	.....	$20	$15	Real del Monte	2,554	10.00	550	500
Candelaria de Pan	1,200	.....	20	20	San Francisco Hc.	6,000	1.00	115	120
Capuzaya Guan	2,400	.....	15	12	Soledad	960	5.00	270	230
Restauradora	10,000	.....	20	10	Sorpresa	950	7.50	200	230
Guanajuato:					Union Hacienda	2,000	5.00	240	200
Angustias	2,400	5.00	45	50	Mexico:				
Cinco Senoresy An	2,000	15.00	220	265	Coronas	500	.....

DIVIDENDS.

GOLD, SILVER, COPPER, ZINC, LEAD AND QUICKSILVER COMPANIES.

No.	Name and Location of Company.		Authorized Capital Stock.	Shares Issu'd No.	Shares Issu'd Par Val	Dividends Paid, 1901.	Dividends Total to Date.	Latest Date.	Latest Amt.
1	Acacia, g.	Colo.	$1,500,000	1,500,000	$1		$45,000	Dec.. 1900	.01
2	Adams, s.l.c.	Colo.	1,500,000	150,000	10		701,000	Nov.. 1900	.05
3	Ætna Con., q.	Cal..	500,000	100,000	5		225,000	April. 1900	.15
4	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	$18,000	519,031	Jan.. 1901	.10
5	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	75,000	4,595,000	Jan.. 1901	.37½
6	Amalgamated, c.	Mont.	75,000,000	750,000	100	1,500,000	9,000,000	Jan.. 1901	2.00
7	Amazon, g.	Colo..	600,000	600,000	1		121,882	May.. 1900	.10
8	Amer. Sm & Ref., pref.	U. S..	32,500,000	274,000	100	479,500	3,162,053	Jan.. 1901	1.75
9	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25		180,000	Jan.. 1900	1.00
10	Anaconda, c.	Mont.	30,000,000	1,200,000	25		16,950,000	Oct.. 1900	2.00
11	Apollo Con., g.	Alask	1,000,000	100,000	10		210,000	Jan.. 1900	.07
12	Argonaut, g.	Cal..	2,000,000	200,000	10		490,000	May.. 1900	.05
13	Arizona, c.	Ariz..	3,190,550				1,464,848	Sept.. 1900	.84
14	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	880,000	Feb.. 1901	2.00
15	Bald Butte, g. s.	Mont.	250,000	250,000	1		852,148	Sept.. 1900	.06
16	Boston-Aurora, pref.	Mo...	800,000	32,000	25		66,160	May.. 1900	.50
17	Boston & Colo. Smelting	Colo..	750,000	15,000	50	11,250	326,350	Jan.. 1901	.75
18	Boston Duenweg, z.	Mo...	1,000,000	40,000	10		56,900	June.. 1900	.10
19	Boston Get There, z.	Mo...	250,000	22,500	10		20,250	April. 1900	.10
20	Boston Gold-Copper Sm.	Colo..	1,000,000	1,000,000	1		50,000	Nov.. 1900	.02½
21	Boston & Mont. Con., c.s.g	Mont.	3,750,000	150,000	25	1,500,000	22,475,000	Feb.. 1901	10.00
22	Boston Phila., z. l.	Kas..	200,000	20,000	10		2,000	May.. 1900	.10
23	Boston Providence, z., pf	Mo...	150,000	15,000	10		17,242	Aug.. 1900	.05
24	Boston, q.	Cal..	1,000,000	100,000	10		20,000	Jan.. 1900	.10
25	Boston Springfield, z.	Mo...	500,000	20,000	25		15,000	June.. 1900	.25
26	Breece, i.s.	Colo..	5,000,000	200,000	25		100,000	Dec.. 1900	.05
27	Buffalo Hump, g. s. l.	Idaho	1,000,000	100,000	10	25,000	300,000	Jan.. 1901	.10
28	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10		2,498,400	June.. 1900	.10
29	Bull Hill Con., g.	Colo..	1,500,000	1,500,000	1		15,000	Dec.. 1900	.01
30	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	21,000	1,074,000	Jan.. 1901	.07
31	Butte & Boston Con., c.	Mont.	2,000,000	200,000	10		1,000,000	Dec.. 1900	5.00
32	Butterfly-Terrible, g.	Colo..	1,500,000	1,250,000	1	6,250	6,250	Jan.. 1901	.00½
33	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25		73,850,000	Dec.. 1900	20.00
34	Cariboo-McKinney, g.	B.Col	1,250,000	1,250,000	1		478,087	Oct.. 1900	.01½
35	Centen'l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	50,000	2,467,700	Jan.. 1901	.50
36	Center Creek, l. z.	Mo...	1,000,000	100,000	10		40,000	Dec.. 1900	.20
37	Center Star, g.	B. C..	3,500,000	3,500,000	1	35,000	105,000	Feb.. 1901	.01
38	Central Lead, l.	Mo...	1,000,000	10,000	100	5,000	212,000	Jan.. 1901	.50
39	Cloverdale, z.	Mo...	1,000,000	100,000	10		80,000	July.. 1900	.20
40	Columbia, l.	Mo...	500,000	48,500	10		16,975	Nov.. 1900	.05
41	Commonwealth, z., pref.	Mo ..	500,000	100,000	5		50,000	June.. 1900	.05
42	Consolidated Gold Mines	Colo..	1,000,000	1,000,000	1	10,000	140,000	Jan.. 1901	.01
43	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5		1,591,000	Nov.. 1900	.11
44	Consolidated, z. l., pf.	Mo...	400,000	400,000	1		8,000	Jan.. 1900	.20
45	Cordell, z. l.	Mo...	300,000	60,000	5		30,000	Sept.. 1900	.05
46	Crœsus, g.	Cal...	1,000,000	200,000	5		151,300	Dec.. 1901	.06
47	Daly West, g.	Utah.	3,000,000	150,000	20	90,000	697,500	Feb.. 1901	.30
48	De Lamar, g. s.	Idaho	2,000,000	400,000	5		2,394,000	May.. 1900	.12
49	Dixie, g.	Utah.	125,000	125,000	1		10,000	April. 1900	.02
50	Doctor-Jack Pot Con., g	Colo..	3,000,000	2,900,000	1	29,000	29,000	Jan.. 1901	.01
51	Doe Run, l.	Mo...	1,500,000	10,000	100	15,000	417,072	Jan.. 1901	1.50
52	Ducktown, c. i. sul. (ord)	Tenn.	374,000	7,480	50		133,144	May.. 1900	5.00
53	Ducktown (founder).	Tenn.	1,000	200	5		66,160	May.. 1900	125.00
54	Elkton Con., g.	Colo..	3,000,000	2,500,000	1		979,461	Dec.. 1900	.03
55	Empire State-Idaho.	Idaho	6,000,000	100,000	10	29,554	702,241	Jan.. 1901	.30
56	Florence, s.	Mont.	2,500,000	440,000	5		252,000	April. 1900	.05
57	Frisco Con., l. s.	Idaho	2,500,000	500,000	5		920,000	Nov.. 1899	.25
58	Gemini	Utah.	500,000	5,000	100		700,000	Aug.. 1900	10.00
59	Gold Belt, g.	Colo..	1,250,000	1,250,000	1		112,500	Aug.. 1900	.09
60	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	30,000	630,000	Jan.. 1901	.03
61	Gold Deposit, g.	Colo..	500,000	500,000	1		10,000	Mar.. 1900	.02
62	Gold King, g.	Colo..	1,000,000	936,850	1		178,001	Oct.. 1900	.03
63	Golden Cycle, g.	Colo..	1,000,000	200,000	5	10,000	388,500	Jan.. 1901	.05
64	Golden Eagle, g.	Colo..	500,000	500,000	1		25,000	June.. 1900	.01
65	Grand Central, g.	Utah.	250,000	250,000	1		691,250	Nov.. 1900	.10
66	Grand Gulch, c.	Ariz..	250,000	240,000	1		9,600	April. 1900	.01
67	Grass Valley Expl.	Cal...	100,000	30,000	2		67,500	May.. 1900	.25
68	Greater Gold Belt, g.	Colo..	5,000,000	3,800,000	1		76,000	June.. 1900	.02
69	Gwin, g.	Cal..	1,000,000	100,000	10	15,000	166,500	Jan.. 1901	.15
70	Hecla, l. s.	Idaho	250,000	1,000,000	¼		100,000	Dec.. 1900	.02
71	Hecla Con., s. l.	Mont.	1,500,000	30,000	50		2,220,000	Dec.. 1900	.05
72	Helena, g.	Ore..	1,000,000	1,000,000	1	5,000	50,000	Jan.. 1901	.00½
73	Hidden Treasure, g.	Cal..	360,000	36,000	10		457,452	Sept.. 1900	.10
74	Holy Terror, g.	S. D..	500,000	500,000	1		172,000	Jan.. 1900	.01
75	Home, g.	Colo..	50,000	50,000	1		100,000	July.. 1900	.50
76	Homestake, g.	S. D..	21,000,000	210,000	$100	$105,000	$9,508,750	Jan.. 1901	.50
77	Horn-Silver, g. s. c.z. l.	Utah.	10,000,000	400,000	25		5,279,000	June.. 1900	.05
78	Ingham Con., g.	Colo..	750,000	1,359,600	½	6,798	6,798	Jan.. 1901	.00½
79	Iowa, g. s. l.	Colo..	1,666,667	1,666,667	1		136,834	June.. 1900	.00½
80	Iron Silver.	Colo.	10,000,000	500,000	20		2,550,000	Dec.. 1900	.10
81	Isabella, g.	Colo.	2,250,000	2,250,000	1		720,000	Dec.. 1900	.01
82	Jamison, g.	Cal..	3,900,000	390,000	10		50,700	April. 1899	.10
83	La Fortuna, g.	Ariz..	250,000	250,000	1		920,500	Dec.. 1900	.05
84	Lake City, g.	Colo.	50,000	50,000	1		3,875	May.. 1900	.01
85	Last Dollar, g.	Colo..	1,500,000	1,500,000	1		120,000	Nov.. 1900	.02
86	Le Roi, g.	B.Col	5,000,000	200,000	5		1,305,000	Nov.. 1899	1.20
87	Lightner, g.	Cal..	125,000	105,000	1		5,250	Oct.. 1900	.05
88	Lillie, g.	Colo..	1,250,000	250,000	5		349,183	April. 1900	.05
89	Mammoth, g. s. c.	Utah	10,000,000	400,000	25		1,790,000	Nov.. 1900	.05
90	Marion Con., g.	Colo..	5,000,000	500,000	10		300,000	May.. 1899	.01
91	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	30,000	210,000	Jan.. 1901	.03
92	Midget, g.	Colo..	1,000,000	1,000,000	1		120,000	Dec.. 1900	.15
93	Modoc, g. s.	Colo..	500,000	500,000	1	5,000	210,000	Jan.. 1901	.01
94	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5		453,700	April. 1899	.12
95	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	240,000	1,840,000	Jan.. 1901	3.00
96	Morning Star Drift, g.	Cal..	240,000	2,400	100		854,490	Sept.. 1900	3.00
97	Mountain, c.	Cal..	6,250,000	250,000	25		2,373,750	Oct.. 1900	2.16
98	Mt. Diablo, s.	Nev..	5,000,000	50,000	100		260,271	Jan.. 1900	.10
99	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1		75,000	Dec.. 1899	.04
100	Moulton, g.	Mont.	2,000,000	400,000	5		500,000	Oct.. 1899	.05
101	Napa Con., q.	Cal..	700,000	100,000	7	10,000	1,210,000	Jan.. 1901	.10
102	National Lead, com.	U. S..	15,000,000	149,054	100		1,341,486	Mar.. 1900	1.00
103	National Lead, pf.	U. S.	15,000,000	149,040	100		10,579,280	Dec.. 1900	1.75
104	New Idria, q.	Cal..	500,000	100,000	5	20,000	270,000	Jan.. 1901	.20
105	N. J. & Mo., z.	Mo...	250,000	2,500	100		11,000	June.. 1900	2.00
106	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	15,000	1,430,000	Jan.. 1901	.10
107	New Zealand, g.	Colo..	600,000	600,000	1	60,000	60,000	Jan.. 1901	.10
108	North Star, g.	B. C..	1,500,000	1,300,000	1		117,000	Dec.. 1900	.03
109	North Star Mines.	Cal..	5,000,000	250,000	10		584,850	Nov.. 1899	.20
110	Nugget, g.	Colo..	1,000,000	991,000	1	9,910	64,910	Jan.. 1901	.01
111	Old Colony Zinc & Sm.	Mo...	1,100,000	69,909	10	17,477	85,753	Feb.. 1901	.25
112	Omega, g.	Colo..	1,500,000	1,212,550	1		18,188	June.. 1900	.01½
113	Ontario, s. l.	Utah.	15,000,000	150,000	100		13,662,500	April. 1900	.30
114	Osceola. c.	Mich.	2,500,000	93,000	25		3,638,500	Dec.. 1900	3.00
115	Parrot, c.	Mont.	2,300,000	229,850	10	344,775	4,738,600	Jan.. 1901	1.50
116	Pennsylvania Con., g.	Cal..	5,150,000	51,500	100		161,325	May.. 1900	.10
117	Plumas Eureka, g.	Cal..	1,406,250	140,625	10		2,797,544	April. 1900	.60
118	Portland, g.	Colo..	3,000,000	3,000,000	1	180,000	3,487,080	Jan.. 1901	.06
119	Quicksilver, pref.	Cal...	4,300,000	43,000	100		1,866,911	July.. 1900	.50
120	Quincy, c.	Mich.	2,500,000	100,000	25	300,000	12,270,000	Feb.. 1901	3.00
121	Rambler–Cariboo, s. l.	B.Col	1,250,000	1,250,000	1		105,000	Mar.. 1900	.01
122	Republic Con., g.	Wash	3,500,000	3,500,000	1		382,500	Mar.. 1900	.01
123	Rocco-Homestake, g.s.	Nev..	300,000	300,000	1	4,500	13,500	Jan.. 1901	.01½
124	Sacramento, g.	Utah.	5,000,000	1,000,000	5		138,000	Oct.. 1899	.00½
125	St. Joseph, l.	Mo...	3,000,000	250,000	10		3,309,500	Dec.. 1900	.15
126	Santa Rita, g.	Colo..	1,000,000	1,000,000	1		4,000	July.. 1900	.02
127	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	75,000	3,525,000	Jan.. 1901	.50
128	Silver Shield, g.	Utah.	300,000	300,000	1	1,500	3,000	Jan.. 1901	.00½
129	Small Hopes, s.	Colo..	5,000,000	250,000	20		3,325,000	Feb.. 1899	.10
130	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	30,000	1,760,000	Jan.. 1901	.03
131	South Swansea, s. l.	Utah.	150,000	150,000	1		165,000	Oct.. 1899	.05
132	Southern Boy, g.	Colo..	1,250,000	875,000	1		17,500	May.. 1900	.02
133	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1		10,000	Nov.. 1899	.00½
134	Standard Con., g. s.	Cal...	2,000,000	200,000	10		3,979,226	Nov.. 1900	.10
135	Standard, s. l.	Idaho	500,000	500,000	1		2,165,000	Dec.. 1900	.08
136	Stratton's Independ'ce.	Colo..	5,500,000	1,000,007	5	120,001	2,885,353	Jan.. 1901	.12
137	Swansea, s. l.	Utah.	500,000	100,000	5	5,000	281,500	Jan.. 1901	.05
138	Tamarack, c.	Mich.	1,500,000	60,000	25		7,290,000	Dec.. 1900	10.00
139	Tomboy, g.	Colo..	1,500,000	300,000	5		956,000	Dec.. 1900	.24
140	Touraine, g.	Colo..	1,250,000	1,250,000	1		87,500	April. 1900	.07
141	Union, g.	Colo..	1,250,000	1,250,000	1		395,244	Sept.. 1900	.25
142	Union, z. l.	Kas..	500,000	500,000	1	10,000	45,000	Feb.. 1901	.01
143	United, z. l., pref.	Mo...	6,000,000	14,938	25		30,263	Oct.. 1900	.50
144	Utah, g.	Utah.	2,000,000	100,000	10		181,000	Oct.. 1900	.02
145	Vindicator Con., g.	Colo..	1,500,000	1,500,000	1	27,500	521,000	Jan.. 1901	.02½
146	War Eagle Con., g. s. c.	B.C..	2,000,000	1,750,000	1		545,250	Feb.. 1900	.01½
147	What Cheer, z.	Mo...	225,000	22,500	10		11,250	May.. 1900	.20½
148	Wolverine, c.	Mich.	1,500,000	60,000	25		510,000	Oct.. 1900	2.00
149	Yellow Aster, g.	Cal...	1,000,000	100,000	10		459,410	Dec.. 1900	.10
150	Zoe, g.	Colo..	1,500,000	1,500,000	1		7,500	Dec.. 1900	.00½

COAL, IRON AND OTHER COMPANIES.

No.	Name and Location of Company.		Authorized Capital Stock.	Shares Issu'd No.	Shares Issu'd Par Val	Dividends Paid, 1901.	Dividends Total to Date.	Latest Date.	Latest Amt.
1	Alabama Coal & Iron, pf	Ala...	$2,500,000	25,000	$100		$218,750	Nov.. 1900	1.75
2	Altoona Coal & Coke.	Pa....	2,500 000	250 000	10	$75,000	75,000	Jan.. 1901	.30
3	Am. Agricul. Chem., pf.	U. S..	20,000,000	170,000	100		1,530,000	Oct.. 1900	3.00
4	American Cement.	Pa....	2,100,000	200,000	10	80,000	220,000	Jan.. 1901	.40
5	American Coal.	Md...	1,500,000	60,000	25		982,500	Sept.. 1900	1.00
6	Am. Fuel Oil.	Cal...	100,000	100,000	1	1,000	16,000	Jan.. 1901	.01
7	Am. Iron & Steel, com.	Pa....	17,000,000	34,000	50	8,500	42,500	Jan.. 1901	.25
8	Am. Iron & Steel, pf	Pa....	3,000,000	60,000	50	37,500	237,480	Jan.. 1901	.62½
9	Am. Sheet Steel, pf.	U. S..	26,000,000	245,000	100	428,750	428,750	Jan.. 1901	1.75
10	Am. Steel Hoop, pf.	U. S..	14,000,000	140,000	100	245,000	1,470,000	Jan.. 1901	1.75
11	Am. Steel & Wire, com.	U. S..	50,000,000	500,000	100		2,625,000	Oct.. 1900	1.75
12	Am. Steel & Wire, pf.	U. S..	40,000,000	400,000	100	700,000	6,300,000	Jan.. 1901	1.75
13	Arizona Western Oil.	Cal...	100,000	100,000	1		1,000	Sept.. 1900	.01
14	Bethlehem Steel.	Pa....	15,000 000	300,000	50		900,000	Dec.. 1900	.50
15	Buckhorn Oil.	Cal...	200,000	16,000	10		3,800	Mar.. 1900	.05
16	Burlington Oil.	Cal...	60,000	60,000	1	600	4,200	Jan.. 1901	.01
17	Cambria Steel.	Pa....	16.000,000	320.000	50	160,000	1,760,000	Feb.. 1901	.50
18	Central Oil.	W.Va	1,500,000	60,000	25	22,500	45,000	Feb.. 1901	.37½
19	Colo. Fuel & Iron, pf.	Colo..	2,000,000	20,000	100	80,000	1,240,000	Feb.. 1901	4.00
20	Consolidation Coal.	Md...	10,250,000	102,500	100	205,000	5,318,000	Feb.. 1901	2.00
21	Continental Oil.	Cal...	300,000	240,000	1	7,200	7,200	Apr.. 1901	.03
22	Crucible Steel, pf.	U. S..	25,000,000	243,995	100		426,991	Dec.. 1900	1.75
23	Diamond Star Oil.	Cal...	250,000	100,000	1		6,250	Nov.. 1900	.02
24	Diamond State Steel.	Del ..	3,000,000	150,000	10	60,000	160,000	Jan.. 1901	.40
25	Empire Steel & Iron, pf.	U. S..	5,000,000	23,700	100	35,550	213,300	Jan.. 1901	1.50
26	Federal Steel, com.	U. S..	100000,000	464,843	100	2,324,215	4,067,377	Feb.. 1901	5.00
27	Federal Steel, pf.	U. S..	100000,000	532,609	100	798,914	7,456,568	Jan.. 1900	1.50
28	Flat Top C. L. Ass'n, com	Va. ..	5,000,000	37,141	100	37,141	815,699	Feb.. 1901	1.00
29	Flat Top C. L. Ass'n, pf.	Va. ..	5,000,000	37,141	100	37,141	1,987,027	Feb.. 1901	1.00
30	General Chem., com.	U. S..	12,500,000	70,703	100		411,814	Dec.. 1900	1.00
31	General Chem., pf.	U. S..	12,500,000	81,264	100	121,896	641,855	Jan.. 1901	1.50
32	Gray Eagle Oil.	Cal...	250,000	100,000	2½	50,000	170,000	Jan.. 1901	.50
33	Great Western Oil.	Cal...	100,000	10,000	10		10,000	Oct.. 1900	.10
34	Home Oil.	Cal...	100,000	100,000	1	10,000	210,000	Jan.. 1901	.10
35	Homestake Oil.	Cal...	100,000	10,000	10		23,000	Dec.. 1900	.25
36	Jefferson & Clearf. C'l, cm	Pa....	1,500,000	15,000	100		30,000	Aug.. 1900	2.00
37	Jefferson & Clearf. C'l, pf.	Pa....	1,500,000	15,000	100	37,500	225,000	Feb.. 1901	2.50
38	Kern Oil.	Cal...	100,000	100,000	1	25,000	350,000	Jan.. 1901	.25
39	Kern River Oil.	Cal...	100,000	20,000	5		10,000	Sept.. 1900	.50
40	Lehigh Coal & Nav.	Pa....	14,346,650	286,933	$50		18,516,990	Oct.. 1900	1.50
41	Maryland Coal, pf.	Md...	1,895,005	18,850	100		640,869	Dec.. 1900	3.00
42	Monongahela R. Coal, pf	Pa....	10,000,000	200,000	50	$350,000	760,000	Jan.. 1901	1.75
43	Montana Coal & Coke.	Mont.	5,000,000	200,000	25		120,000	Oct.. 1900	.30
44	National Salt, com.	U. S..	7,000,000	70,000	100	105,000	350,000	Feb.. 1901	1.50
45	National Salt, pf.	U. S..	5,000,000	50,000	100	87,500	612,500	Feb.. 1901	1.75
46	National Steel, pf.	U. S..	27,000,000	270,000	100		3,307,500	Dec.. 1900	1.75
47	National Tube, com.	U. S..	40,000,000	398,604	100	597,906	1,793,718	Feb.. 1901	1.50
48	National Tube, pf.	U. S..	40,000,000	399,963	100	699,935	4,199,611	Jan.. 1901	1.75
49	New Central Coal.	Md...	1,000,000	50,000	20		510,000	Nov.. 1900	.40
50	New Haven Iron & Steel	Conn.	500,000	100,000	5	7,500	102,500	Jan.. 1901	.07½
51	Oceanic Oil.	Cal...	100,000	100,000	1		2,000	Dec.. 1900	.01
52	Pacific Coast Borax.	Cal...	2,000,000	20,000	100		762,500	Dec.. 1900	1.00
53	Park Crude Oil.	Cal...	100,000	82,146	1		4,897	Sept.. 1900	.01
54	Pennsylvania Coal.	Pa....	5,000,000	100,000	50		19,700,000	Nov.. 1900	2.00
55	Pennsylvania Salt Mfg.	Pa....	2,500,000	50,000	50		12,550,000	Oct.. 1900	3.00
56	Pennsylvania Steel, pf.	Pa....	1,500,000	15,000	100	26,250	157,500	Jan.. 1901	1.75
57	Pittsburg Coal., pf.	Pa....	32,000,000	320,000	100	560,000	2,800,000	Jan.. 1901	1.75
58	Producers' & Con. Oil.	Cal...	1,000,000	10,000	100		50,000	Oct.. 1900	.30
59	Republic Iron & Steel, pf	U. S..	25,000,000	203,069	100	855,371	2,132,225	Jan.. 1901	1.75
60	Rex Crude Oil.	Cal...	500,000	85,000	5		26,000	Oct.. 1900	.08
61	San Joaquin Oil.	Cal...	100,000	100,000	1	10,000	10,000	Jan.. 1901	.10
62	Shawmut Oil.	W.Va	1,250,000	50,000	25	25,000	25,000	Feb.. 1901	.50
63	Shelby Iron.	Ala..	1,000,000	10,000	100		250,000	June.. 1900	12.00
64	Sloss-Sheffield Ir.&St., pf	U. S..	20,000,000	67,000	100	114,000	456,000	Jan.. 1901	1.75
65	So. Cal. Oil & Fuel.	Cal...	300,000	100,000	1		3,000	Dec.. 1900	.00½
66	Standard Oil (of N. J.).	U. S.	100000,000	975,000	100		73,125,000	Sept.. 1900	8.00
67	Susquehanna I. & S., pf.	Pa..	1,500,000	300,000	5	22,500	537,500	Jan.. 1901	.07½
68	Tenn. Coal, I. & R.R., com	Tenn.	23,000,000	225,536	100		1,102,144	Nov.. 1900	2.00
69	Tenn. Coal, Ir. & R.R., pf	Tenn.	248,000	2,480	100	4,960	248,000	Feb.. 1901	2.00
70	Texas & Pacific Coal.	Tex..	2,000,000	20,000	100	30,000	1,830,000	Jan.. 1901	1.50
71	United States Crude Oil.	Cal...	100,000	10,000	1		3,200	Dec.. 1900	.08
72	United States Oil.	W.Va	2,500,000	100,000	25		744,250	Oct.. 1900	.50
73	Va.-Carolina Chem., com	U. S..	12,000,000	90,000	100		720,000	Dec.. 1900	1.00
74	Va.-Carolina Chem., pf.	U. S .	12,000,000	100,000	100	200,000	1,400,000	Jan.. 1901	2.00
75	Warwick Iron & Steel.	Pa....	1,500,000	14,133	100		158,597	Nov.. 1900	2.00
76	West Lake Oil.	Cal..	500,000	500,000	1		50,000	Sept.. 1900	.01
77	Westmoreland Coal.	Pa....	5,000,000	250,000	50		750,000	Oct.. 1900	1.50
78	Yukon Oil.	Cal...	2,500,000	100,000	2½		21,000	Oct.. 1900	.02

This table is corrected up to January 30th. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT WHOLESALE PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.12
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Naxos flour, in kegs	"	.03
Grains, in kegs	"	.05
Chester flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Peekskill flour, in kegs	"	.01¾
Grains, in kegs	"	.02½
Crude, ex-ship, N. Y.:		
Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30.00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12
German	lb.	.45
Boracic, cryst	"	.10½@.11
Powdered	"	.11@.11½
Carbolic, crude, 60%	gal.	.27
Cryst, 37% drums	lb.	.23
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure	"	.07
Hydrofluoric, 36%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst	"	.29@.29½
Powder	"	.30@.30½
Alcohol—Grain	gal.	2.45
Refined wood, 95@97%	"	.75@.80
Purified	"	1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.25
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.53
Carbonate lump	"	.08½@.08¾
Powdered	"	.09½@.09¾
Muriate, gran.	"	.06
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	60
Antimony—		
Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04½@.04⅝
Red	"	.07¼@.07½
Asphaltum—		
Ventura, Cal.	sh. ton	32.00
Cuban	lb.	.01½@.03½
Egyptian, crude	"	.05½@.06
Trinidad, refined	lg. ton	35.00
San Valentino (Italian)	"	15.00
Seyssel (French) mastic	sh. ton	20.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¼
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1	sh. ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
German, gray	"	14.50
Snow white	"	17.00
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	4.25@4.50
Bismuth—Subnitrate	lb	1.75
Subcarbonate	"	1.95
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	02¾@.03½

	Cust. Meas.	Price.
Borax	lb.	$ .07¼@.07½
Calcined	"	.25
Bromine	"	.40
Cadmium—Metallic	"	1.40
Sulphate	100 lbs.	2.00@2.50
Calcium—Acetate, gray	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	80.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.75
Best	"	.80
Sulphite	lb.	.05
Cement—		
Portland, Am.	400 lbs.	bbl. 1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	1.05
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported	"	1.65
Ceresine—		
Orange and Yellow	lb.	.12
White	"	.14
Chalk—Lump, bulk	sh. ton	2.60
Ppt. per quality	lb.	.03¼@.06
Chlorine—Liquid	"	.30
Water	"	.15
Chrome Ore—		
(50% ch.) ex-ship, N. Y.	lg. ton	26.00
Sand, f.o.b. Baltimore	"	33.00
Bricks, f.o.b., Pittsburg. M		175.00
Clay, China—Am. com. ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ordinary	sh. ton	4.25
Best	"	6.00
Slip Clay	"	7.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.20@2.30
Gray	"	2.22@2.40
Smalt, blue ordinary	"	.14
Best	"	.19
Copperas	100 lbs.	.45
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.21@.21½
Powdered	"	.21¼@21½
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb.	keg	2.50
Blasting powder, B.	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (20% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13½@.13¾
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—In bulk.		
Am. lump, 1st grade	"	12.40
2d grade	"	11.90
Gravel & crushed, 1st g	"	11.40
2d grade	"	10.90
Ground, 1st grade	"	15.90
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—Am. f. o. b. Providence, R. I. lump	sh. ton	8.00
Pulverized	"	30.00
German, lump	lb.	.01¼
Pulverized	"	.01½@.02
Ceylon, common	"	.03½
Pulverized	"	.04@.08
Italian, pulv	"	.01¼
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01¼
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran	"	.8¼
Lime—Com., ab. 250 lbs	bbl.	.70
Finishing	"	.80
Magnesite—Greece.		
Crude (95%)	lg. ton	6.50@7.00
Calcined	sh. ton	14.00@15.00
Bricks	M.	170.00
Am. Bricks, f o.b. Pittsburg	"	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Blocks	"	.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20

	Cust. Meas.	Price.
Magnesium—		
Nitrate	lb.	$0.60
Sulphate	100 lbs.	.90
Manganese—Crude-pow'd 75@75% binoxide	lb.	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.26¾
Domestic	"	.30
Marble—Flour	sh. ton	6.00@7.00
Mercury—Bichloride	lb.	.77
Mica—N. Y. gr'nd. coarse	"	.03¼@.03¾
Fine	"	.04@.05
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	19.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.: 25@30 cold test	gal.	.09¼@.09¾
15. cold test	"	.10¼@.10¾
Zero	"	.11¼@.12¼
Summer	"	.08¾@.09¼
Cylinder, dark steam ref	"	.09¼@.10¼
Dark filtered	"	.11¼@.15¾
Light filtered	"	.14¼@.17¼
Extra cold test	"	.21¼@.26¼
Gasol ne. 86°@90°	"	.16@.21
Naphtha, crude 68@72°	bbl.	9.60
"Stove"	gal.	.12
Linseed, domestic raw	"	.56
Boiled	"	.58
Calcutta, raw	"	.85
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08¼@.10
Wood grease	"	.05@.06
Ozokerite	"	.10@.12
Paints and Colors—		
Chrome green, common	"	.05
Pure	"	.16
Yellow, common	"	.10¼
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.07
Litharge, Am. powd.	"	.05½@.06
English flake	"	.08
Glassmakers	"	.07½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02½
Orange mineral, Am	"	.07¾@.08
Foreign, as to make	"	.08½@.11½
Paris green, pure, bulk	"	.12½
Red lead, American	"	.06
Foreign	"	.07¾
Shellac, "D. C."	"	.30
Native	"	.15
Turpentine, spirits	gal.	.40½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.10@.15
Quicksilver, bulk	"	.64
English, imported	"	.80
White lead, Am., dry	"	.05¾
English	"	.06½@.07¾
Whiting, common	100 lbs.	.42
Gilders	"	.54
Zinc white, Am., ex. dry	lb.	.04⅝@.04⅞
American, red seal	"	.06¼
Green seal	"	.07¼
Foreign, red seal, dry	"	.06¼@.06⅝
Green seal, dry	"	.07¼@.09⅞
Potash—Caustic, ord	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.08¼
Powdered or gran	"	.14
Bichromate, Am	"	.08⅜
Scotch	"	.08½
Carbonate, hydrated	"	.04½
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.27½@.28
Iodide, bulk	"	2.50
Permanganate, pure cr.	"	.11¼@.11½
Prussiate, yellow	"	.14⅝@.15¼
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.80
Medium	"	1.90
Salt—		
N Y com. fine	sh. ton	2.00
N. Y. agricultural	"	1.50
Saltpeter—		
Crude	100 lbs.	3.50
Refined	"	4.25
Silica—Best foreign	lg. ton	10 00@11.00
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silicon—Carbide	lb.	.05

	Cust. Meas.	Price.
Silver—		
Chloride	oz.	$0.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive	"	20.00
Sodium—Acetate, com'l	lb.	.04¼
Bichromate	"	.06⅜
Chlorate, com'l	"	.09@.09½
Hyposulphite, Am	100 lbs.	1.80
German	"	2.00
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02½
Prussiate	"	.12½
Silicate, conc	"	.05
com'l	"	.01
Sulphate, com'l	100 lbs.	.70
Gran., puri'd	lb.	.03
Sulphide	"	.01¾
Sulphite crystals	"	.02½
Tungstate, com'l	"	.35
Strontium—Nitrate	"	.08
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.80
Flowers, sublimed	"	2.05
Talc—N. C, 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.25
Italian, best	"	1.75
Tar—Regular	bbl.	2.00
Oil barrels	"	4.00
Tin—Bichloride	lb.	.09½@.10
Crystals	"	.22
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.40
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	.07¼@.09⅛
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¼@.07½
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	1.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium—Sticks	kg.	1.55
Sheets	"	2.83
Granulated	"	2.38
Powder	"	1.90
Calcium—Elect	grm.	4.28
Cerium—Fused	"	2.02
Nitrate (N. Y.)	oz.	1.25
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.20
Cobalt—(98@99%)	kg.	6.66@8.33
Pure	"	30.94
Didymium—Powd.	grm.	3.81
Fused, Elect.	"	5.47
Nitrate (N. Y.)	oz.	2.50
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	2.50
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm.	3.57
Iridium—Fused	"	1.07
Powder	"	.95
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	2.25
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—Ingot	kg.	6.19
In wire or ribbon	"	9.99
Powdered	"	5.95@7.14
Sheet	"	9.04
Molybdenum—Fused	grm.	.15
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.94
Palladium—Wire	"	.86
Sponge	"	62
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.38
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	26 28
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Com'l	"	28.56
Chem. pure crystals	"	59.50
Amorphous	"	27.86
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks	kg.	107.00
Chem. pure powder	"	83.30
Thallium	"	26.18
Thorium—Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Wolfram—Fused, elect	kg.	238.00
Powder, 95@98%	"	1.43
Chem. pure powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	2.75
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	oz.	.75

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Jan. 8. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.